RECENTLY PATENTED INVENTIONS.

Railway Appliances.

CAR COUPLING. — Samuel A. Cloud, Lenni, Pa. This is a simple form of automatic coupling in which the link consists of a single bar having at each end an annularly grooved cylindrical head, with spring-supported segments arranged in the grooves, adapted for engagement by internal shoulders of the drawhead, pusher bars being movable against the segments by means of a lever, to force the segments into the grooves of the link for disengaging it. The outer edges of the spring-supported segments are beveled, and readily enter the cylindrical bore of the drawhead, where they are forced outward by their springs to engage the shoulders and effect the coupling.

CAR AXLE BOXES. — John Donnelly, London, England. This invention relates to a method of manufacturing axle boxes from sheet metal plates by successive stamping, pressing and bending operations, avoiding the necessity of planing or otherwise machining the horn plate grooves out of the solid metal. The blank is subjected to the successive action of dies to form the horn plate grooves and the projections and depression for the reception of the box lid appurtenances, the blank then being bent into box-like form and its meeting edges welded together. All of the tools for forming the shell and liner are preferably operated by hydraulic pressure applied in the ordinary way, although other mechanical power may be used.

Mechanical Appliances.

WARP LINKING MACHINE. — William A. Denn, Philadelphia, Pa. This is a machine for looping and double-looping or linking warps, providing therefor a needle which will operate as well with small as large warps, automatically producing the links. The machine has a reciprocating distributing horn below which is a stationary trip bar with inwardly curved stripping fingers in front of it, the linking needles reciprocating alternately in opposite directions below the path of the distributing horn and above the trip bar and stripping fingers. Each needle has a hook at one end, a concaved surface between the center and the hook, and a retaining plate pivoted at one end beneath the concaved surface and the hook and capable of folding over one or the other.

WINDMILL REGULATOR.—Edward B. Wilson, Central City, Neb. The device provided by this invention is more especially adapted for use with windmills used for pumping water, automatically controlling the mill, to set it in operation when the water in the tank gets low and stop it when the tank is full. A float in the tank is connected with one arm of a bell crank lever whose other arm is connected by the aid of simple intermediate devices with a clutch for throwing the wheel into and out of the wind. The regulator may be operated by hand when the windmill is to be used for other purposes than filling a tank.

HOISTING MACHINE. — James Arthur, Jersey City, N. J. This is a power hoisting machine to be applied to the ordinary hand hoist, and has a pair of shafts, one fixed and the other movable, each carrying a grooved sheave for gripping the rope, while the shafts have pulleys to receive driving belts, the movable shaft having a pivoted hanger and lever for moving it to cause the sheaves to bite the rope. The swiveled hanger box is of novel construction, allowing the movable shaft to move without binding, and there is an interchangeable arrangement of the hangers and lever, whereby one or the other of the hangers and shafts may be made movable, and by which the operating lever may be arranged to be lifted or depressed from either side of the machine to adapt it for use in any locality.

RATCHET BRACE. — Henry C. Fraser, Charleston, S. C. This brace is made with two sleeves in which the tool shank is adjustably held, a ratchet wheel being carried by each sleeve, while a U-shaped handle arm has its ends mounted to turn on the sleeves and has pawls engaging the ratchet wheels. The arrangement is such that the brace can be conveniently shifted on the shank of the tool, permitting the use of tools of considerable length for boring deep holes. While a large purchase power is obtained, the construction is simple and durable, and the tool is easy to operate.

CENTRIFUGAL GOVERNOR.—Henry L. Berger and Edouard Noel, Abbeville, La. This invention provides an improvement on a former patented invention of the same inventors. A pulley is secured on the main driving shaft, and a valve eccentric is mounted on an arm pivotally connected with the pulley and having a slot through which the main shaft passes. A second arm is pivotally connected with the first arm beyond the shaft and carries a second eccentric mounted loosely on the main driving shaft, while a weighted and spring-pressed lever is pivoted ont he pulley and pivotally connected with the second eccentric to control its movement. This governor is designed to be very effective and accurate in operation, while being simple and durable in construction.

Agricultural.

HAND PLANTER. — Seth Hackett, Bronson, Mich. This is a device which may be operated by one hand, and has a standard with a handle at its upper end and a blade at its lower end, the hopper being secured on the standard and having a single bottom perforation to feed grain through a downwardly tapering delivery chute. A feed disk within the hopper is operated by a link rod extending to a pivotally connected lever which is also connected with a fulcrum foot that rests on the ground, the tilting of the standard opening the blades in the ground to allow the grain to pass out. The machine is of the class known as reciprocating hand planters, and is of few and simple parts.

PRUNING IMPLEMENT. — Andreas Bosch, Prairie du Chien, and Frederick Bosch, Merrill, Wis. This invention primarily provides a socket upon a handle into which a number of pruning and trimming implements may be expeditiously inserted and securely clamped in position, so that the implements may be readily and effectively used high up on trees while the operator stands on the ground. The various implements also have special forms of shanks adapted to fit neatly and securely into the socket and be clamped therein, all of the implements being secured in the same manner, and being quickly and conveniently removed.

CORN HARVESTER. — John Bardill, Grant Fork, Ill. The body of this machine consists of a three-wheeled platform having rearward inclined cutters at opposite sides of the center of its forward edge, there being stalk-receiving compartments at the front portion of the platform and spaces for the operators at the rear. As the implement is drawn forward between the rows of corn, the knives sever the stalks in their path, the stalks falling into the compartments and forming themselves into two independent stacks which may be readily removed by the operators, who are effectually protected from danger of cutting by the knives by longitudinal and transverse guard rails.

PLOW.—Carl W. Larsen, Medical Lake, Washington. Pivoted to the plow beam is a knife extending downward in alignment with the share of the plow, while there is an adjusting bar to which is attached a spring plate, and a chain connection between the plate and the knife. The attachment is designed for use in working ground where roots, stones, etc., are numerous, and may be readily carried out of the way when the plow is used as a stubble plow.

WEED MASHING IMPLEMENT. — James W. Hammett, Eureka, West Va. This is a machine which has a fluted and twisted shaft journaled in a frame adapted to be drawn over the ground, and having blades arranged alternately, and is designed to mash down weeds, bushes, briers, etc., to render the ground firm before planting, and also for setting broadcast seed into the ground.

Miscellaneous.

DYEING WOVEN FABRICS. — George Morlot, Paterson, N. J. In the dyeing apparatus provided by this invention the frame to be placed in the vat has brackets projecting from its upper side rails, with two series of rollers mounted between the upper and lower side rails, rollers mounted above the end upper rollers, and adjustable tightening rollers in the brackets. The arrangement is such that all strain is taken off the fabric, which is made to travel easily and smoothly and without undue stretching, while it is conveniently passed in its entire width through the dyeing liquid, to evenly saturate the fibers and insure perfect work without any streaks.

WATCH CASE BACK. — Paul Stucker, Brooklyn, N. Y. This invention provides, as an improved article of manufacture, a back having an attached plate cut in intaglio with the cut surfaces filled with enamel, raised metal figures being grouped around and adjacent to the plate, the thickness of the raised metal figures corresponding mainly to that of the plate. It is also provided that the back may be of very thin metal and yet be strong and stiff and highly ornamental with the raised and enameled figures.

WATCH MAKER'S TWEEZERS.—Olavus Kolstad, Pleasant Hill, Mo. The jaws of these tweezers are flattened on their inner and rounded on their outer faces, while there is a transverse groove across the inner face of one of the jaws to receive the pin to be grasped, and a catch pivoted to one member is adapted to swing over both members to prevent them from springing too far apart.

HEARTH, ASH PAN AND FENDER.—Emily C. Stewart, Birmingham, Ala. This is a combination portable device for open fireplaces, the fender serving also as the handle of the pan. It consists of a receptacle covered at its forward end, to form a hearth, and open at its rear end to receive the ashes as they accumulate, while a combined folding handle and fender are pivoted to the top of the receptacle. The combination device forms but a single article, and when the ash receptacle becomes filled the handle and fender are turned up to form a handle by which the pan can be readily removed and the ashes taken care of without any sweeping or shoveling.

INFUSING COFFEE OR TEA. — Ludwig and August Chronik, Brooklyn, N. Y. This is a simple apparatus for automatically performing the operation of making tea or coffee. A boiler is hung upon a counterbalanced lever controlling a lamp extinguisher, the flame of the lamp heating the water in the boiler until sufficient steam is generated to cause the water to flow through a pipe having a rose jet, by means of which the boiling water is directed upon the ground coffee or tea previously placed in a receptacle provided therefor, the counterbalanced lever then extinguishing the lamp, and the vacuum resulting when the steam is condensed causing the infused liquid to be drawn back in the boiler, ready for use.

BALANCE SCALE.--Richard M. Shaffer, Baltimore, Md. This invention is designed to dispense with the use of detached weights as customary in the usual forms of counter scales, while also retaining the advantages of weighing by weights instead of springs. This is effected mainly by placing one of the pans of the balance at a lower level than the other and providing a series of weights connected with a series of pulls or adjusting handles, by moving one or several of which one or more weights will be placed in the pan to weigh any body placed in the other pan, the pulls being each plainly marked with the weights they represent.

SHOW CASE ALARM. — Rudolph C. Kruschke, Duluth, Minn. The show case provided by this invention has a number of metallic strips on its floor, and the trays have spring clips for holding the articles shown, the spring clips being connected electrically and held open by the articles, while the tray itself is furnished with contact points bearing on the metallic strips on its floor, the strips being in the circuit of a battery in which is included an electric alarm bell. When an article is removed from any one of the clips the contact points come together and close the circuit, giving an alarm, or if the article is removed when the tray is out of the case, the alarm will be given when the tray is put back.

BULKHEAD. — George J. Cook, New Orleans, La. This invention provides a construction designed to be strong, simple and durable for the protection of levees on rivers. Piles are driven into the levee and partly into the natural soil, and posts are driven behind the piles into the natural soil, braces extending upward from the posts to the piles. A covering or sheathing is secured to the front of the row of piles and extends into the natural soil a suitable distance below the base of the levee, and at suitable intervals a pipe or pipes is passed through the levee and the covering or sheathing for the furnishing of water to farm lands adjacent to the levee, each pipe having a collar secured to the sheathing to prevent leakage. The bulkhead is preferably one to two feet above high water mark, and has two feet of ground above it.

VEHICLE BRAKE. — Alfred L. Hagen, Franklin, and Frank E. Dyer, Mount Desert, Me. This brake is designed more especially for road wagons and other vehicles. The front end of the vehicle body is fitted to slide on the king bolt, and a chain or rope connected with an arm on the ordinary brake mechanism is connected with one of two differential wheels on the rear axle, a rod being connected with a chain on the other wheel and also with the rear axle, the invention also including other novel features. The brake is intended to be entirely automatic in its action, the shoes being applied with more or less force according to the load and the steepness of the grade, while all strain is taken off the team.

WEIGHT FOR HORSES' HOOFS.—George R. King, Dallas, Texas. This is a toe or side weight having a stud projecting therefrom at its lower end for engaging a shoe, a plate being hinged to the weight adjacent to the stud, and a spring supported on the plate to bear on the stud and maintain the weight in place. The weight may be applied to any part of the hoof, either at the toe or sides, and is designed to adjust itself to the inclination of the hoof, being self-locking and effectively held against rattling, while being readily attachable and detachable.

BEDSTEAD FASTENING. — Henry R. Robbins, Baltimore, Md. This improved fastener includes the side rail section and the section attached to the head or foot board, the end section being composed of a latch plate having a handle projecting through a slot in the face plate whereby the latch plate may be set to unlatched position. The latch plate has notches in its front edges for the bearing roll, and on its rear edges has runner-like luge, the bearing roll and the face plate being fitted over the latch plate. The device is very simple, and forms a secure and easily manipulated fastening.

BED DRAWER ATTACHMENT.—Leonia Mabee, Paris, Texas. A bed drawer, according to this improvement, is arranged to slide beneath the usual mattress support, thereby doubling the capacity of the ordinary bedstead, and providing for the accommodation of four persons instead of two. The bedstead has an opening in its side in which the drawer slides, and a folding head piece and legs are hinged to the drawer and adapted to fold parallel against the side rails of the bed drawer.

TOY OR PUZZLE. — Philip J. Hogan, Negaunee, Mich. This is what may be styled a "push box" puzzle, a box which may be held in the hand having its bottom marked in differently colored sections, while on the bottom beneath a glass cover are several variously marked cubes, each side of each of which represents different values, the cubes being moved and tossed to different positions and changes of face on the field by the movement of the box, the numerous combinations possible affording opportunities for playing many interesting games, a chart also being provided for use in connection with the box.

GAME APPARATUS.—Albert Cromwell, Philadelphia, Pa. A circular game board with flanged edge and concaved center has pins supporting tags around its edges, and the top of the board is divided into differently colored sections. To play on the board a top is used having facets on its sides numbered to correspond with the sections of the board, and a circular marker is used in connection with the top, the marker being perforated so that it may be dropped on the spindle of the top. The game may be played by four persons when the board is divided into eight parts, chips being used by the players, and the holder of the tag corresponding to the space on which the marker strikes after the top has been spun "takes the pot."

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.

PRIMARY BATTERIES. By Henry S. Carhart. Boston: Allyn & Bacon. 1891. Pp. 193. Price $1.50.

The subject of the construction of primary batteries and of their tests, the theory and mathematics of the subject, are excellently treated in this work, which may be said to have a larger scope as coming from an American source. The grouping of the cells is not very thoroughly treated, but we notice with pleasure that the grouping of batteries for the quickest action and introduction of the time constant is developed, something usually omitted.

SCREWS AND SCREW MAKING. With a chapter on the milling machine. Britannia Company. Colchester, England. Pp. vii, 208. Price $1.25.

This work claims to be the largest volume devoted entirely to screws and screw making, and consists largely of the contents of committee reports and tabulations on screw systems of different nations, with illustrations of machines for making screws, and exhaustive tables. One very useful chapter is devoted to arithmetical rules for calculating wheels for cutting screws on a lathe.

TRANSITION CURVE FIELD BOOK. By Conway R. Howard. New York: John Wiley & Sons. 1891. Pp. 109. Price $1.50.

The object of this work is to furnish a practical method of determining a curve in railroad surveying, for connecting circular curves with tangents. The book will have to speak for itself, and it will, no doubt, be very useful to railroad engineers.

A TREATISE UPON WIRE, ITS MANUFACTURE AND USES. Embracing comprehensive descriptions of the constructions and applications of wire ropes. By J. Bucknall Smith. Offices of *Engineering*, London. John Wiley & Sons, New York. 1891. Pp. xxiii, 347. Price $3.

The manufacture of the different kinds of wire used in the arts, for the transmission of power, for structural purposes, etc., its transportation by rail, and all the most interesting details of wire engineering, are treated in this elegant work. The illustrations, paper, and type are beyond all criticism, suggesting an absolute *edition de luxe*. The subject is treated, not at all from an English standpoint, but American practice is given full prominence.

CATALOGUE OF MINERALS AND SYNONYMS. By T. Egleston. New York. John Wiley & Sons. 1891. Pp. 377. Price $2.50.

The present catalogue was commenced in the year 1867 and contains, it is claimed, several thousand more names than any other heretofore published. The indexes of sixteen leading works on mineralogy have been utilized to make the catalogue, as far as possible, a complete table of mineralogical synonyms in different languages.

REPORTS ON THE OBSERVATIONS OF THE TOTAL ECLIPSE OF THE SUN, December 21, 22, 1889; and of the total eclipse of the moon, July 22, 1888; to which is added a catalogue of the library published by Lick Observatory. Sacramento, Cal. 1891.

Several reports of the Lick Observatory are here bound together with some very beautiful silver prints of eclipses, together with other illustrations. It is an interesting work and shows what the Lick Observatory is now doing.