Shakespeare monument is at the end of the wall, and close by it is a splendid group of an Indian hunter and his dog. There are also statues of Morse and busts of Schiller, Burns, and Humboldt.

Work is still in progress, and every year finds new beauties added to New York's great breathing place. That it is appreciated by the people, the crowds which throng every pathway on Sundays testify, suggesting indeed the thought that even this large expanse will ere long become too small, and another vast park will be needed to supply the want of our constantly increasing population.

NEW BOOKS AND PUBLICATIONS.

CASTLE'S UNIVERSAL INTEREST TABLETS. New York: Root, Anthony & Co., 62 Liberty Street. Price $2.

This is a neat leather case, containing three cards with interest tables printed on them. By manipulating the cards according to the printed directions, the interest on any sum for any length of time can be easily ascertained. Our book keeper has tested the tables, and he pronounces the system the neatest and quickest he has ever seen.

REPORT OF PROGRESS OF THE GEOLOGICAL SURVEY OF CANADA FOR 1871–'72. Montreal: Dawson Brothers.

GENERAL REPORT OF THE COMMISSIONER OF AGRICULTURE AND PUBLIC WORKS OF THE PROVINCE OF QUEBEC, for the Year 1871, and the Half Year ending June 30, 1872. Montreal: La Minerve.

The subjects of these two interesting and valuable reports are too large to be fully discussed in our columns; it must therefore suffice to say that the compilation of the books shows zealous and thorough research on the part of the officers of the Geological Survey and the Commissioner of Agriculture. Indications of thriving industries and a prosperous population are to be found throughout the agricultural report; and the cry is for more laborers, especially for farm hands.

Messrs. A. D. Mellick, Jr., & Brother, 6 Pine Street, New York city, have published an excellent book on the railway enterprises and real estate resources of New Jersey, which will be found valuable to all who think of locating near New York.

FLOWER OBJECT LESSONS, OR FIRST LESSONS IN BOTANY: A Familiar Description of a few Flowers. From the French of M. Emm. Le Maout. New York: William J. Read, 116 Fulton Street.

A little work likely to be useful to the teacher and interesting to the pupil. It is well suited for use in the well known *kindergarten* system, and will, we hope, help to popularize the knowledge of one of the most beautiful and accessible of scientific studies.

THE MYSTERY OF METROPOLISVILLE. By Edward Eggleston, author of the "Hoosier Schoolmaster," "The End of the World," etc. New York: Orange Judd & Co., 245 Broadway.

Here we have another pleasant, racy story of western life, from a writer who is thoroughly acquainted with the rough, hearty genuineness and the eccentricities of the border life in our States. Mr. Eggleston's fame as an original thinker and story teller was made by his first book; and the last work from his pen more than sustains his reputation. This story was written for *Hearth and Home*, wherein it first appeared.

DETAIL, COTTAGE, AND CONSTRUCTIVE ARCHITECTURE, containing Seventy-five Plates of Perspectives, Elevations, and Plans for Houses, Villas, Cottages and Country Houses. Published under the direction of A. J. Bicknell. Price $10. New York: A. J. Bicknell & Co., 27 Warren Street.

This is a handsome and elaborate volume, containing some hundreds of designs for houses in all styles, with drawings of all the necessary details. The value of this book to persons intending to build, and to country builders in places where architectural talent is not readily available, will be well understood from its title; and the engraving and printing are such as to make it an ornamental volume, worthy of the admirable examples with which the book is filled.

Inventions Patented in England by Americans.

[Compiled from the Commissioners of Patents' Journal.]

From March 21 to March 27, 1873, inclusive.

BOOT PEGGING MACHINE.—J. H. Reed, Boston, Mass.
BUNG AND BUNG INSERTER.—L. Van Laak, J. Gillespie, San Francisco, Cal.
COTTON PRESS, ETC.—B. G. Martin, New York city.
MAKING HOSE.—E. P. Richardson, Laurence, Mass.
MIDDLINGS SEPARATOR.—E. L. Lacroix, Minneapolis, Minn.
MIDDLINGS SEPARATOR.—G. T. Smith, Minneapolis, Minn.
NEEDLE THREADING DEVICE.—G. P. Farmer, Brooklyn, N. Y.
PRESSURE GAGE.—J. W. Stiles, New York city.
SAWING MITERS, ETC.—J. H. Carpenter, Paterson, N.J.
STEAM BOILER.—G. H. Babcock, Plainfield, N. J., S. Wilcox, Brooklyn, N. Y.
TREATING FIBER.—W. Shedd, Boston, Mass.

Recent American and Foreign Patents.

Improved Shutter Fastener.

Ellen D. Anderson, Frederick, Md.—The invention consists in combining a telescopic lock bolt with two notched brackets, arranged one near the inside, rear, and bottom end of each shutter, whereby the shutters may not only be securely locked together against the weather strip, or back against the house, but may be "bowed" at various intermediate points, to afford a larger or smaller opening and a greater or less degree of light and air.

Improved Explosive Cartridge Pile Driver.

Henry Vogler, Baltimore, Md.—This invention consists in a novel mode of relatively constructing the hammer and anvil of that class of pile drivers in which a cartridge is employed and wherein powder is caused to explode and be converted into a highly expansible gas between the anvil and the hammer. The resistance of the latter enables it to drive the former with great force against the pile. By the present construction of hammer and anvil, much of the expansive power escapes and is lost unless the cartridge chamber is made very deep, while this increase in the depth causes the chamber to heat very rapidly, to often set fire to the cartridge, and thus to cause the hammer to stick in the anvil. The present invention entirely obviates both these evils, as the gases cannot expand except in the direction of and against the hammer and anvil, while the cartridge chamber can be made so shallow as not to heat the chamber sufficiently to set fire to the cartridge.

Improved Roll for Rolling Railway Rails.

John W. Cooper, Hubbard, Ohio.—The invention relates to modes of constructing rolls so as to shape a compound rail made of two sections and locked together by a groove on one, into which the upper edge of the other fits. The invention consists in the mode of constructing the roll grooves so that the larger section of rail is brought into preliminary shape and subsequently recessed on the under side of head to receive the upper edge of the lesser section.

Improved Pea Vine and Corn Stalk Gatherer.

Absolan B. Sharp, Labadieville, La.—This invention relates to a rake adapted especially for gathering pea vines, corn stalks, and other plants cultivated on ridges, and it consists in the provision of a revolving rake-head carrying a series of teeths of unequal lengths, which are so arranged in relation to each other that the teeth operate or rake both in the furrows and on the ridges, a hinged check plate being provided or combined with the rake for holding the teeth stationary until a load is collected by the same, when, through the medium of a hand lever and connecting rods, the plate is disengaged from the teeth, for allowing the same to revolve to discharge the load.

Improved Nut Lock.

Edward Turner, Greensburgh, Pa.—This invention relates to that class of devices used to prevent nuts from being turned on their screw bolts by jarring or jolting, and thus allowing the latter to be loosened. The invention consists in one or more disks cut away on a portion of their circumferences sufficiently to allow a nut to be applied to or removed from its bolt, and of such a diameter between two opposite points of the curved part of their circumferences that the said curved part and the corners of the nut will rotate in circles that cut each other.

Improved Lamp Shade.

Wm. Simons, Charleston, S. C.—This invention consists of a shade formed of two like parts, approximating an ellipse in shape, and united at the ends so as to have the usual conical truncated form, and also leave notches in top or upper edge which adapts it to the fan shaped flame of a lamp or gas burner. The two parts may be readily detached to adapt the shade for packing and transportation.

Improved Medicine Chest.

Wm. H. Cutler, Buffalo, N. Y.—The object of the invention is to provides an improved case for containing medicinal preparations (more especially that known as carbolate of iodine) and instruments for inhaling the same; and to this end an oblong rectangular wooden block is bored longitudinally with two parallel holes, one to contain the bottle, the other the inhaling instrument. The cover of the case is of sheet metal, provided with a thumb piece, and with flanges fitting in grooves formed in the longer sides of the block, at the open end thereof. The case is cheaper and more durable than paper boxes heretofore used for the same purpose, and is capable of resisting pressure or blows, and also dampness.

Improved Chair.

Jacob Baughman and Bennet R. Chalk, Mt. Washington, Md.—The invention consists in improving the ordinary mode of applying spring backs to sewing machine chairs so that any old and ordinary chair may readily receive a spring back, and so that the back may be rigidly held at any point of adjustment.

Improved Carpet Stretcher.

David White, Normal, Ill.—This invention consists in applying a swiveled button and sustaining yoke to the jointed strips so as to lock the stretcher in any desired position and thereby enable the same person to do the stretching and tacking down.

Improved Umbrella Holder.

Abraham Oberndorf, Jr., Baltimore City, Md.—The invention consists in providing the lower end of an umbrella handle with means whereby it may be easily and conveniently hung to the vest or other part of the clothing.

Improved Brush Socket.

Philipp Wagner, Morrisania, N. Y.—The invention relates to the construction of a bridge for sheet metal sockets of brushes (mainly paint brushes), so as to secure strength and cheapness in the manufacture. The invention consists in the employment of ribs or corrugations on the side edges whose subjacent concavities receive the side edges of the socket.

Buoying and Stopping Leaks.

John W. Cooper, Hubbard, Ohio.—The invention consists in a flat, flexible, and inflatable bag secured to the gunwale, passing down the side of the vessel, up through certain tubes, and connecting with the deck, whereby said bag may be adjusted to cover a breach at any point in the side of the vessel.

Improved Cotton Picker.

Enoch Taylor, Memphis, Tenn.—This invention consists in brushes fixed to vertical cylinders and revolving inwardly so that the balls of one side of each stalk with which the rotary brush comes in contact will be deprived of the ripe cotton. It also consists in the arrangement of mechanism for operating the cylinder from the wheels and in guides that reach cut from the side and in advance of the machine to catch, hold, and guide the cotton stalks up to the brushes.

Combined Adjustable Pinchers and Grappling Tool.

Simon B. Dexter, Mason city, Iowa.—This invention relates to a tool or instrument which may be used as a wrench, pinchers, or grapple for raising or carrying weights. The jaws, by means of a series of holes, are made adjustable to adapt them to articles of different size. A shank rod is connected by means of a fork on the end thereof, with the fulcrum pin of the pinchers. This rod extends back and passes into the handle, and on it is placed the wedge shaped slide consisting of two rods which pass through eyes at the ends of the pincher handles. At the back end of this slide is a screw which allows the handle or other appliance to be firmly attached to the slide. As this slide is moved back and forth on the rod, it will be seen that the handles of the pinchers and the jaws will be made to move nearer to or further from each other, the variations in this movement depending upon the angle of the slide rods with the shank rod. When any article is secured between the jaws, it is pinched or griped by pulling upon the slide or handle, and is loosened therefrom by a contrary movement. This feature adapts the tool for grappling for articles in wells or under water, as well as for carrying heavy articles or hot pieces of iron in founderies and similar places.

Improved Composition Sidewalk.

Charles H. Howard, Batavia, N. Y.—This invention has for its object to construct a sidewalk or pavement without having to haul loads of stones, bricks, gravel, or other matter to the locality of the proposed walk or pavement, which matter is usually embodied in the composition of walks, and used in place of the soil originally there contained. After the grade has been established, the earth to a depth of three or four inches and to the width of the proposed walk is thoroughly worked over and made very fine. A quantity of magnesia and carbonate of baryta, mixed together, varying in proportion with the nature of the soil found on the ground, is introduced and mixed with the earth. After the chemicals above mentioned have been properly incorporated in the soil, silicate of soda (soluble glass) is added, and the earth then replaced in its bed and properly smoothed on the surface. When the mass is almost dry, it should be covered over with a coat of chalk and magnesia mixed in water glass. This walk is cheaper than stone, will not rot like planks, and can be very rapidly made.

Improved Artificial Stone.

Phylander Daniels, Jackson City, Mich.—The object of this invention is to furnish an artificial stone or pavement which combines strength and durability, and offers, by its fireproof qualities, protection against the danger arising from the too rapid spread of fire. The invention consists in the use of a solution of glue, isinglass, soluble glass, and concentrated ley, which is applied to a mixture of sand, Portland cement, and pommeled glass. This mixture is well dampened with the solution till it forms a pasty mass of the consistency of mortar; and may be formed and well tamped into molds, where it will soon harden, to be taken out and exposed to the air to dry. It may also be laid in the form of a fireproof pavement, or any other suitable purpose.

Improved Harvester.

Thomas Y. Woolford, Romney, W. Va.—This invention belongs to the class of machines so constructed as to be adjusted for use as reapers or mowers, and as front cut or rear cut machines. To the outer end of the hub or central part of the drive wheel is attached a pulley to drive the reel when the machine is adjusted as a reaper. The main driving wheel revolves loosely upon the end of the axle and is made to receive the master wheel which is attached to the axle. The master wheel is made with an inwardly projecting rim, upon the outer surface of which are formed notches, upon which take hold spring pawls, attached to the inner side of the rim of the drive wheel. Upon the inner surface of the rim of the master wheel are formed teeth, into which mesh the teeth of the pinion wheel placed upon the end of the shaft. In the outer side of the gear wheel is formed a slot to receive a cross head formed upon the end of a shaft so that the said gear wheel may carry the said shaft with it in its revolution. By this construction, by moving the gear wheel inward sufficiently to remove it from the crosshead of the shaft, it will revolve loosely upon said shaft. The gear wheel is moved back and forth upon the shaft to throw it out of and into gear by a lever, which is pivoted to the frame and extends forward into such a position that it may be conveniently reached and operated by the driver with his foot. The shaft extends across the frame, revolves in bearings attached to the side bars of said frame, and to it is attached a gear wheel, the teeth of which mesh into the teeth of the small gear wheel attached to the driving shaft. Another shaft is placed a little below and in the rear of the axle, and to its end is attached a balance wheel which serves also as a crank wheel for the bar that drives the sickle bar. The shoe, to which the inner end of the finger bar is detachably bolted, and the various parts connected with it, can be readily adjusted to adapt the machine for a front or rear cut.

Improved Clasp Button.

Andrew Flatley, Brooklyn, N. Y.—This invention has for its object to furnish an improved detachable clasp button for connecting the ends of collars. The invention consists in a clasp button provided with spiral wire fasteners upon the inner side of its two parts to adapt it to be conveniently attached and detached.

Improved Car Coupling.

Aaron K. Kline, Readington, N. J.—This invention is an improvement on the patent granted, to the same inventor, March 5, 1872; and consists in a drawhead having a rear piece backwardly inclined on its top surface to receive and hold the coupling rod when not in use.

Improved Bag Tie.

John Bannihr, Hempstead, and Daniel H. Rhodes, Baldwinsville, N. Y.—This invention consists of two parallel plates connected together along one edge. A lever is pivoted to the connecting plate at one end and fastened to it at the other end by a hook. The string is fastened by passing it through a hole in each of the parallel plates above the connecting plate and under the lever. The latter is then pressed down upon the cord, drawing it down between the plates and wedging it fast, the lever being then fastened by the hook.

Improved Die for Forging Hoe Plates.

Lovell T. Richardson, Auburn, N. Y.—This invention relates to dies which are used in steam, water, or other power hammers for plating planters' hoes from the blanks before they are rolled out. Part of the face of the lower die is the arc of a circle transversely, and one fourth of its length is a flat or plane surface. The face of the upper die is beveled on its corners so as to leave a flat tapering surface.

Improved Waist Belt.

John H. Vogt and George Dietzel, New York city.—This invention consists of a waist belt for ladies' wear, which is woven of a fancy warp of silk cord for the front, a black or binding warp of gimp or strong thread for the body, fine silk warps for the borders, and a weft of gimp. The cord for the warp and the gimp for the weft are coarse and heavy, so as to produce a substantial article of a sufficient stiffness for a belt woven with open meshes.

Improved Fireproof Building Block.

William T. Van Zandt and Lucien A. Tartiere, New York city.—This invention consists in the use of asbestos and plaster of Pa. is in combination with saw dust, coke dust, cinders, sand, or other suitable material, to form fireproof blocks or bricks for walls, roofs, ceilings, floors, and partitions, the material being made plastic with water and shaped in molds.

Improved Sample Fastener.

Charles Mason, New York city.—The object of this invention is to supply to the trade a device by which goods may be quickly placed on show cards or boxes, and taken off again, avoiding thereby the inconvenience of the present mode of applying them, and saving time and labor. The invention consists of a wire bent in triangular shape, with ends overlapping each other, and acting like springs, one end being applied to show cards or boxes, the other to the article to be exhibited.

Improved Wood Fence.

Daniel G. Temple, Farmersville, La.—This invention has for its object to furnish an improved fastening for securing pickets and other upright boards or planks to the horizontal bars of the fence. In putting up the fence, bolts are passed through bars midway between the pickets. A wire is passed through a hole in the head of the bolts or around a groove or neck formed upon said bolts. A second wire is passed along a bar upon the side opposite the pickets, and the ends of the bolts or spikes are bent down or clinched around the said wire.

Improved Toy Puzzle.

Benjamin F. Ellis, Newton, Pa.—This invention consists of a puzzle comprising two or more U shaped bows of wire, with a ring formed in each end, a cross bar for each bow passing through the rings, and having a similar ring at each end, the two being connected together by the large bow passing through the rings of the cross bar of the small bow. With these bows and cross bars is a large ring made in two semicircular parts, which in working out the puzzle is to be worked on and off the small bow through the rings and over the ends of the bows and cross bars.

Improved Window Sash Ventilator.

John C. Bates, Cold Spring, N. Y.—The invention relates to the well known mode of ventilating houses through air inlets and outlets in the window sashes, and consists in employing two slides, relatively apertured with respect to each other and to the sash bar, so as to admit either a direct or indirect draft.

Improved Rotating Hook for Sewing Machines.

Andrew Aird and John Aird, Troy, N. Y.—The object of this invention is to substitute for the present brush loop check, applied to the rotating hook of Wheeler & Wilson sewing machines, a device which does the same work with great regularity, rapidity, and security, avoiding the insufficient working of the brush check and the annoyance resulting therefrom. This invention consists in a reciprocating hook placed inside of the rotating hook and in connection with and regulated by a cam in such a manner that the loop is straightened and held until the rotating hook is near the needle ready to take up a new loop.

Improved Hose Port Holes for Partition Walls.

Henry Woodman, Boston, Mass.—This invention has for its object to furnish an improved device to enable the firemen to introduce their hose nozzles into a closed room and flood it to extinguish a fire without its being necessary to break into the room, saving much time, and preventing the fire from making so much headway. The invention consists in the box flaring in both directions. The mouths of the box are closed with doors hinged at their lower edges, which are provided with spring catch locks which can be opened upon the outer side only with a key, but may be unlocked from the inside by drawing back the bolt of the lock with a stick. In the partition are formed two or more holes, each of which is provided with a door, which doors are placed upon the opposite sides of said partition and are hinged at their outer edges to the sides of the box, and are provided with springs to hold them closed. When it becomes necessary to use the device the door is opened; one of the spring doors is then opened, a stick or other article is inserted through the hole in the partition, and the other door is opened by drawing back the bolt of its lock by means of a projection upon the inner end of said bolt. The nozzle of the hose may then be inserted through one of the holes in the partition. One of the holes in the partition may be used to look through while the hose nozzle is inserted through the other, the flaring mouths of the box enabling all parts of the room to be seen, and the stream of water to be directed to any desired point. When the room has been flooded, or the fire extinguished, the hose nozzle may be withdrawn and the door closed, the spring door closing itself as soon as the hose nozzle is withdrawn.

Improved Furniture Castor.

Cevedra B. Sheldon, New York city.—The invention relates to castors for furniture and other purposes, and is an improvement upon the subject matter of a patent granted to the same inventor, April 1, 1873, the general idea being unchanged from the device therein described, but the particular means by which the same is carried out being made much more simple and less expensive to the manufacturer as well as to the public. Its movable balls will, equally with those of the former patent, prevent sliding friction, and insure a distribution of strain, requiring, however, much fewer balls, and but one set of them, while the whole structure can be manufactured at considerably less cost.

Slatted Flexible Support for Mattresses and Car Seats.

Collin Pullinger, Philadelphia, Pa.—The invention consists in two thicknesses of cloth, or other flexible material, placed one upon the other and united together at suitable intervals to form pockets into which are placed wooden or other slats.

Improved Cotton Press.

James P. Derden, Bastrop, La.—The object of this invention is to improve the means now in use for pressing cotton, hay, and similar commodities, and it consists, first, in a rectangular shaped base frame, upon which stands an upright frame of triangular form, consisting of two uprights, the lower ends of which are connected by a cross timber, upon which one end of the base frame rests. A screw is revolved in the end piece of the base frame. This screw has no longitudinal motion, but is simply revolved by means of a pulley on the end thereof, and a belt from the motive power. The screw presses through a truck frame as through a screw nut. As the screw is revolved, this truck frame travels back and forth. Truck wheels revolve on axle arms of this frame, and traverse on top of the base frame. There is a lever whose fulcrum is at a point near the top of the upright triangular frame; this lever is connected with the truck frame by a bar. The follower is suspended from the short end of the lever by a bar by means of a slot and pin, which allow it more or less play. The connecting bar is inclined to an angle and the follower is raised. If the screw is revolved so as to remove the truck frame outward and bring the bar to a right angle with the lever, it will be seen that the follower will be forced downward with inward power. The truck frame and the bar form a toggle or knee joint to operate upon the lever, while the toggle joint is actuated by the screw.

Improved Floor Clamp.

John J. Foster, Belmont, Texas.—The invention consists in improving the construction of flooring clamps. To the side edges of the rear part of a bar or plate, are secured two uprights by bolts, that pass through the said uprights and through the said plate. The upper parts of the uprights project above the plate, and are connected by bolts. The lower parts of the uprights project below the plate to straddle the timbers to which the flooring or ceiling is to be attached. The bolts are made longer than the width of the plate so that the uprights may be placed wider apart or closer together to adjust them to the width of the sleeper or other timber upon which the clamp is to be placed. Upon the upper side of the plate is placed a sliding plate which is made longer than, and is secured to, said plate by a hand screw which passes through a longitudinal slot. The hand screw is especially designed for locking the plate in place to hold the flooring or ceiling board in place until secured. In the upper side of the rear part of the sliding plate are formed teeth, into which mesh the teeth of the pinion wheel, the journals of which work in bearings in the upper parts of the uprights, said journals being made long so that they may not be drawn from their bearings when the uprights are spread apart. Upon the projecting end of one of the journals of the pinion wheel is formed a head to receive the lever for moving the sliding plate forward and back. To the forward end of the sliding plate is secured a plate to rest against the board or other timber to be moved, and which may be secured to said sliding plate by a set screw. Hooks are pivoted to the uprights to hook upon the opposite edge of the sleeper to prevent the device from slipping while being used.

Improved Street Sweeper.

Orson W. Kellogg, Fond Du Lac, Wis.—The invention consists in the improvement of street sweeping machines. The frame is pivoted at one end on the axle so as to swing or oscillate thereon, and its other support is the wheels which are directly under the brush shaft, and gage the brush to the ground. These wheels are mounted in the curved bars, which are fitted adjustably to the frame, so that the latter can be shifted as to hight to adjust the pressure of the brush on the ground. The dust pan is pivoted at one end of a rod just in advance of the brush, and the other end drags along the ground to receive all the dust lifted by the brush, and conduct it up to the endless elevator. This pan is divided vertically at the center in two parts, so as to conform to the uneven surface of the ground better than it would if made wholly in one piece. Near the lower end the pan is connected by cords with the frame, so as to be raised by the said frame when it is raised. The endless elevator runs from a roller up into the dust box, over another roller, and discharges the dust on the bottom. The roller has a hand crank for lowering and raising the bottom for unloading the dust; and mechanism for holding the bottom closed. Both the brush and the endless elevator are geared at each end with one of the truck wheels. The elevator, by belts and pulleys which turn independently of each other, and the pinions of the brush and pulleys of the elevators, are connected to their respective shafts by gearing which engages only when turning forward, so that in turning corners, when one truck wheel runs slower than the other, the shafts being turned by the outside one, having the greatest motion, will overrun the driver on the other side and be independent of it. A rake is provided for loosening up the matters caked on the pavement in advance of the brush.

Improved Distilling Apparatus.

Gaspar Hunziker, Summit, Miss.—The condensers consist of the vertical pipes in pairs, connected by return bends at the top, connecting with the large horizontal return pipe at the lower ends, the pairs of vertical pipes being connected together at about the middle by pipes, and arranged in sections of about three pairs. Pipe connections are made between each section, with the upper portions extending up into or through a cask to each section, the first section being connected to the kettle, and the last section with the final condensing coil in the tank by pipes. These tanks of the sectional condenser are connected together. The tank has a supply pipe extending to an elevation considerably above the kettle, and the condenser to receive the liquor to be distilled from an elevated cistern or tank high enough to force the liquor through the condensers and into the kettle. A rectifying flask is introduced in the connecting pipe between the last two sections of the condenser; and a flavoring flask is provided from which the distilled liquor passes from the last section of the sectional condenser to the coil in the tank. A small quantity of water is put in the kettle through a funnel, to protect it from the heat, and generate steam for heating the apparatus up to the working condition. The cock in the reservoir is then opened, and the liquor to be distilled is allowed to fill the tank, and, finally, flow into the kettle upon the sprinkler, by which it is divided into fine particles so as to be heated to the best advantage by the vapors which it comes in contact with. The vapors rise up into the condensing pipe within the tanks, the condensing begins in the first section, and whatever is condensed flows down into the return pipe to return to the kettle for being redistilled, while the vapors continue to be acted on in the other sections to which they flow by the cooling medium, by which the separation of the heavy vapors and watery substances is continued, increasing the strength of the alcoholic vapors, as required, using more or less of the sectional condensers, which will have such pipe connections and cocks as may be needed to pass the vapors through the number required. At the same time, after the heavy vapors and watery substances are mainly separated the volatile portions are passed through rectifying and flavoring substances, and thus the necessity for special apparatus to pass the distilled liquor through these substances is saved.

Improved Wrought Iron Blind Hinge.

William R. Goodrich, Utica, N. Y.—This invention relates to wrought metal hinges, which are not liable to fracture in use; and consists in the peculiar relative construction of parts by which the whole hinge is enabled to be constructed of wrought metal. The upper portions of the parts of the hinge are bent over at right angle to form flanges. In the forward part of the flange is formed a hole to receive the conical pintle of the other part. The rear part of the flange projects to serve as a stop to prevent the blind from swinging back against the wall, and also for the catch to lock the blind open. To the forward part of the flange of the other portion of the device is secured a conically enlarged pintle riveted to the leaf, and that fits into the hole before mentioned. Upon the rear part of the flange is formed a catch, the edges of which are made inclined or curved to catch upon the stop to lock the blind open. Upon the forward edge of the lower part of the second portion is formed a catch to serve as a stop by striking against the flange to prevent the blind from being raised from its hinges. In the edge of the flange is formed a notch, for the catch to pass through when raising the blind from its hinges.

Improved Cutter for Harvesters.

William McKeever, Staunton, Va.—The invention consists in a new mode of locking cutters to the cutter bar of a harvester so that each blade can be readily removed without taking off the others. It also consists in a novel mode of conecting the cutters with the cutter bar so that the latter can be reversed and the same cutter bar and blades be made to answer for a right or left handed machine. It also consists in a new mode of fastening the series of cutters together upon the cutter bar.

Improved Nail Plate Feeder.

Samuel K. Paden, Pulaski, Pa.—The invention relates to that class of nail plate feeders which vibrate laterally to bring the plate at the proper angle to the movable cutter. It consists in applying a pair of horizontally and intermittently rotated friction disks at the junction of the hopper and feed guide so as to advance the nail plate to the knives at the proper times and to the proper extent. It also consists in connecting the shafts of these friction disks, which are arranged in oblong bearings, with a spring peculiarly arranged to hold them to the plate yieldingly. It also consists in applying, at the front end of a vibrator, a hinged bearing arm, which is pressed down upon the nail plate by a spring whose tension may be adjusted. It also consists in a peculiar train mechanism for rotating the friction disks intermittently and to the proper distance. It also consists in a novel combination of instrumentalities to enable the nail plate to be turned at the proper angle to a movable knife and to be fed forward by a single movement of the vibrator. It also consists in the application to nail plate feeders of means whereby the vibration is allowed to move some distance before the friction disks begin to rotate so as to allow the movable cutter time to rise above the nail plate. It also consists in simple and convenient means of moving the front end of a nail plate a short distance out of the hopper as soon as its predecessor has passed from the hopper and grippers. It also consists in regulating the bevel or taper of the nail by means of the conveyance of two levers which determine the amount of oscillation of the plate.

Improved Magazine Fire Arm.

George D. Luce, New Orleans, La.—This invention relates to improvements in magazine fire arms; and consists in the construction and arrangement of loading, firing, and cartridge-ejecting mechanism. The hollow sheet metal stock constitutes the magazine chamber and contains a magazine of four tubes, arranged parallel with each other, connected together and mounted on a pivot at each end, so as to be turned to present the cartridges to the passage, through the base block, for being delivered into the carrier. The tubes of the magazine have a coiled spring in the lower end for pushing the cartridges into carrier. The magazine is provided with a thumb bit at the lower end for turning it by hand. A receiver or frame incloses the loading, firing, and cartridge-ejecting mechanism proper, and is formed of a continuation of the stock so shaped as to be cylindrical in its upper and rear portion, the barrel screwing into it, while its two sides are parallel below the barrel. The left side is, however, bent outward to form a tube through which the cartridge shells are ejected. The guard lever is pivoted to these plates and is allowed to move a certain distance before pushing the retractor forward. A stud pin with a friction roller on it is arranged on one side of the guard lever, to work under the hammer to throw it back, to be caught by the trigger when the guard lever is thrown forward for extracting the shell and introducing a new cartridge. The said guard lever also has mechanism to cause it to raise the breech plate to open the breech for the discharge of the shell and the introduction of a new cartridge; after which suitable means cause the breech plate to fall and close the barrel. The retractor has a notch into which the flange of the cartridge falls before being pushed into the barrel, in which it lies after being discharged, ready for being pushed back by the retractors into the hollow carrier, when the guard lever is pushed forward. The retractor also has a notch at the lower rear corner, which, as soon as the shell has been pushed back into the carrier, engages with devices so that the further movement of the guard lever pulls the rear end directly downward to swing the carrier down in front of the passage to receive another cartridge, as shown in broken lines. The cartridge is forced in by the spring of the magazine, and forces the shell out through the discharge tube, the flange of the shell being at this time released from the notch of the retractors by the swinging out of said cartridge with the carrier as the latter is swung down in front of passage. A rounded stud on the retractor is provided, so as to cause the retractor to spring down and escape past the flange of the cartridge when the guard lever is pulled back, in case a cartridge may fail of being discharged, and be forced back into the barrel with its flange in advance of the projection, which may occur when the last cartridge is fired, on account of there being none in the magazine to force it out of the carrier, and which might injure, or perhaps break the retractor; but this will not happen if the muzzle of the gun is held down so that the cartridge will fall out of the carrier by its own weight. It is only in case this may be forgotten or neglected that the shell can thus get back into the barrel, and even then the flange will not be in advance of the notch except in case the shell happens to move forward in the carrier before it is raised up to the barrel.

Improved Medical Compound.

Herman Themel, Esconawba, Mich.—The object of this compound is to purify the blood, and is composed of Indian rhubarb, gentian, galangal root, wormwood and saffron, macerated together in alcoholic liquor. A table spoonful is the quantity recommended as a dose by the patentee.

Improved Furnace for Heating Iron Bars, etc.

Joseph Pardoe, Worcester, Mass.—Two fires are arranged, one on each side of the furnace hearth, and are fed alternately with fuel, so that the gases from the fresh coal of one fire will be consumed by the heat from the incandescent coal of the opposite fire. The iron is placed lengthwise of the hearth, so that the flame and heat pass between the bars and lengthwise thereof, instead of first striking the sides of the bars, as in ordinary furnaces. The iron, besides being placed parallel with the draft, may by this arrangement be cut in longer pieces than where it is placed transversely of the course of the flame. By having two fires arranged in this furnace the iron may be introduced through the right and left hand doors alternately, and kept in two separate piles, one exposed to fire of the fresh fuel and in the process of gradually heating, and the other exposed to the heat of incandescent fuel, and ready to be withdrawn and rolled.

Improved Hot Air Register.

Edward A. Tuttle, Brooklyn, N. Y.—This invention consists of an extension of the hot air pipes of furnaces and the like a considerable distance above the floor, through large holes adapted to allow the air to circulate around the pipes as a protection against fire. The valves are placed on the top of the pipes so that the falling of the sweepings and other matters into the pipes is effectually prevented, and the whole is enclosed in an ornamental guard or screen of open metal work, which protects the pipes and hides them and the opening through the floor from view.

Improved Yarn and Cloth Beam and Whip Roller.

George Lawrence Garsed, Wilmington, Del.—The object of the invention is to remedy the tendency in the wooden yarn and cloth beams and whip rollers of looms to shrink and become warped at their junction with the pulleys, and thus to allow the pulleys to lean at an oblique angle thereto. This has the effect to cause the yarn to be wound unevenly on the yarn beam and to create, when unwound, an unevenness of tension which produces a want of uniformity in the cloth.

Improved Hand Car.

Daniel M. Hunt, Southampton Mills, Pa.—The invention consists in an improved mode of connecting the hand lever with the crank shaft. The frame or truck of the car supports a top frame work. The two wheels at one end are mounted upon the axle, which also carries a pinion. Into this pinion meshes a toothed wheel which is mounted upon a crank axle that hangs in the lower part of the frame. A rod connects the crank of the axle with a walking beam that is pivoted to the top of the frame. The beam is provided with handles at the ends, so that when it is, by the occupants of the car, oscillated on its pivot it will impart rotary motion in the desired direction to the wheel, and thence to the axle to propel the car. The crank shaft is hung in its bearings in such manner that it can slide thereon, and is by a joint connected at one end with an elbow lever which is pivoted to the under side of the frame. By swinging the lever in one direction the shaft will be moved in its bearings to carry the wheel out of gear, while, when the lever is swung in the other direction, the wheel will be thrown into gear with the pinions.

Improved Paper Feeding Machine.

Miguel Piedra, Jersey City, N. J.—The operation of feeding paper to a swift printing press, requiring considerable manual dexterity, is generally performed by hand labor. This invention of Mr. Piedra's, by substituting very ingenious and doubtless effective mechanism, is therefore destined not only to cause considerable economy in the wages of extra hands but to increase the capabilities of the presses in connection with which it may be used, and insure better register. The paper to be fed by this apparatus is in the form of superposed sheets placed upon a table at the back part of the machine. This table is made up and down adjustable, either by being hinged at its back end or secured by a vertical slide, and is especially made up and down adjustable at its forward end. A hollow cylinder is so arranged that, when it arrives at its backward position, a pipe pendent therefrom will arrive over the pile of papers resting on the table. At this moment a plunger is drawn out of the cylinder, and a vacuum, or at least a refraction of air created therein, and at the same time the paper is, by the elevation of the table, raised into contact with the cup shaped lower end of the pipe and a valve simultaneously opened. Therefore the vacuum in the cylinder will be applied against the upper sheet on the table, and will suck the same against the lower end of the pipe. The cylinder at this time makes its forward motion, and takes the upper sheet forward with it until after it has reached its most forward position. The plunger is, by suitable means, violently thrown into the cylinder to discharge the sheet from the end of its pendent pipe. The backward motion of the plunger causes a spring lever to shut the valve. The motion imparted to this lever is, of course, simultaneous with the entering of the plunger into the cylinder, and consequently the valve is shut at the same time that the plunger enters the cylinder; the paper being therefore discharged from the end of the tube by the shutting of the valve as much as or rather more than by the expulsion of air from the cylinder. The cylinder now resumes its backward motion, and the operation aforementioned is repeated until the paper on the table has been entirely removed, in successive sheets. The mechanism herein described is not intricate, and is stated to be easily kept in repair. The means of feeding the paper is certainly the most advantageous that can be devised, because it dispenses with all the griping devices by which the sheets are more or less injured.

Improved Wheel for Vehicle.

Hiram Pitcher, Fond Du Lac, Wis.—The invention consists in the peculiar mode of combining and arranging the hub with a sleeve and axle made fast together. The hub is made in two parts screwed together. The axle passes through a sleeve, the outer end being square, which fits the outer end of the sleeve, so that the latter forms the arm or wearing surface of the axle. The wearing surface of the sleeve is at each end thereof, between which is an oil chamber. The hub forms the box, the two parts of which have each a bearing for the sleeve, and a flange for supporting the spoke. There is a collar on the axle. An interior flange works against a collar on the axle and against the end of the sleeve. A screw nut on the end of the axle bears against the end of the sleeve. A cap screws on to the outer part of the hub, in which is a square orifice for introducing a plug wrench for turning it on or off. Through this cap oil is introduced to the oil chamber. A washer is made fast to the spokes. The ends of the spokes rest upon the inner part of the hub, but the flanges are equal in diameter, and support the spokes. The spokes entirely fill the space between the flanges so that the washer rests upon solid wood. The wheel is thus formed without mortises in the hub or tenons on the spokes. Each part of the hub has a polygonal section, by means of which they are readily separated with a wrench.

Improved Low Water Indicator and Alarm for Boilers.

Mark Ellwood, Girard, O.—This apparatus indicates the quantity of water in a steam boiler, and gives an alarm by blowing a whistle in case of low water. When the boiler has a sufficiency of water it cuts off the steam from the pumping engine, and stops thereby the supply of water. The frame, to which the actuating part of the apparatus is attached, is suspended by means of bolts from the shell of the boiler. The apparatus consists of two sections, one being inside and one outside of the boiler, the former being the actuating part and the latter the indicating and alarm part. A float is supported in position by the vertical guides which connect the upper plate with the lower plate of the frame inside the boiler. On one end of a lever is a sector wheel which engages with a vertical sliding rack. The other end of this lever is connected with the bottom of the float by a rod, and also has a counter weight, which is designed to balance the rack so that the float, as it rises and falls with the water in the boiler, will cause a corresponding motion in the rack, with but slight friction. A rod, the lower end of which is attached to an arm on the lower end of the rack, passes up through a tube into a dial chamber on top of the boiler, and has upon its upper end an index pointer. This pointer passes over the face of the graduated dial plate, and its position, being governed by the action of the float and consequently by the hight of the water in the boiler, will indicate, by means of the marks and figures on the plate, the quantity of water in the boiler. The entrance of the steam into the pipe connecting with the whistle is governed by the action of a valve which is on the lower end of a rod actuated by an arm on the upper end of the rack. The arm slides freely on the valve rod, and when it strikes the collar the valve is lifted from its seat, steam enters the pipe and the whistle is blown, thus giving the alarm for low water. A pipe connects the boiler with the pumping engine. When there is a sufficient supply of water this pipe is closed by a cone valve on top of the float. When the water in the boiler falls the valves fall with the float, and the pumping engine is again supplied with steam.

Improved Grain Measure and Register.

Royal B. Clark, Lyle, Minn.—This invention has for its object to furnish an improved machine for measuring grain and registering the amount as it comes from the separator. The hollow cylinder is supported by legs, of such a length that bags to receive the grain may be conveniently hung upon the discharging spout upon the lower side of said cylinder. With an opening in the upper side of the latter is connected a hopper to receive the grain, and which should have a glass plate inserted in its side to enable the attendant to conveniently see when the measure is full. An inner and smaller cylinder is pivoted to the cylinder by a shaft, by which it is revolved. The inner cylinder comes close up to the upper side of the outer cylinder, and consequently close to the hopper, leaving a space between the lower sides of the two cylinders to allow the grain to flow out freely through the spout. The inner cylinder is divided into two equal compartments, and upon the opposite sides of the partition are formed openings to receive the grain from the hopper. Each compartment contains exactly half a bushel. One end of the shaft projects and works in a small frame attached to the end of the outer cylinder, and to which the wheels of the register are pivoted. To the end of the shaft is attached mechanism to prevent the inner cylinder, and consequently the wheels of the register, from turning back, and also gearing which actuates a second shaft to which a lever is pivoted. To the side of the lever is pivoted a lever pawl, the inner end of which is bent inward, passes through a hole in the lever and enters a hole in a wheel. A number of holes is formed in this wheel to receive the end of the pawl, at such a distance apart that the movement of the wheel through the space between two of said holes will give a half revolution to the inner cylinder. The cylinder shaft connects with gearing which actuates the fingers on the dial plate of the register. Upon the dial plate are formed two circles of division marks, to the outer one of which one finger points, and to the inner one of which the other finger points. The teeth of the gear wheels are so arranged that the first finger may move one space upon its scale of division marks at each semi-revolution of the measuring cylinder. The second finger moves through one space upon its circle of division marks at each revolution of the first finger, so as to register the number of bushels counted. The machine is designed to be placed at the side of a grain thrasher or cleaner so as to receive the grain from an elevator connected with said thrasher or cleaner.

Improved Extension Attachment for Stove Pipes.

Samuel Johnson, James Creek, Pa.—This invention has for its object to furnish an improved attachment for stove pipes, by the use of which the stove pipe may be conveniently lengthened and shortened to adjust it to the place where the stove is to be set up. To the lower part of the length of pipe that slides into the other is attached the lower end of a bar that is slotted longitudinally. The end of the bar that is attached to the first pipe is made with an offset to raise the body of the bar away from the pipe. The other or free end of the bar has an inwardly projecting flange formed upon it to rest against the side of the pipe and steady it. To the lower part of the side of the other length of pipe is attached a screw, which projects through the slot of the bar to receive a hand nut, so that by tightening the said nut the bar will be clamped and the adjacent lengths of pipe will be held securely in place; and by loosening the said nut the lengths of pipe may be readily adjusted as required.