

**Trade in Farming Implements.**

At the close of the civil war a reaper, now selling for \$75, cost \$120; a steel plow, now costing \$12, sold for \$26; a potato digger, now costing \$7, sold for \$25; grain scythes, now costing \$9 a dozen, cost \$26; shovels, now costing \$9 a dozen, cost \$20; binders, now costing \$130, cost \$400; and mowing machines, now costing \$50, cost \$110. As this process of reduction has been going on, the product of American factories in the line of agricultural implements has been generally extended and vastly improved, so that the United States are now not only at the head of all other countries, but so far at the head of other countries that there has practically ceased to be any serious competition, except in respect to the supplies sold by certain European countries to their colonies. Through the free markets of the world, without restrictions established by governments, the United States are the great source of supply.

The importance of the business carried on both at home and abroad by the United States manufacture of farming implements is shown by the figures of the last Federal census of 1890. There were at that time, approximately, 1,000 manufactories of agricultural implements in the United States, the amount invested in this line of manufacture being nearly \$150,000,000, the average number of persons employed in it being 45,000, the materials used averaging in value \$30,000,000, and the output \$80,000,000.

Since the summer of 1893, the American trade in agricultural implements has been subjected to a marked prostration. The export trade of the country in agricultural implements has continued large and has even increased:

1893 (fiscal year).....	\$4,857,000
1894 (fiscal year).....	5,027,000
1895 (fiscal year).....	5,410,000
1896 (fiscal year).....	5,176,000
1897 (fiscal year).....	5,240,000

The Argentine Republic has been the chief customer of the United States in this item of manufacture, and the South American countries and West Indies have been customers to a smaller extent. But while the foreign market has continued, the home mar-

ket for American agricultural machinery has been curtailed greatly, in consequence of the failure of some crops, the diminished prices for cereals, the accumulation, West and South, of mortgages and the contraction of credits to farmers, who, as a rule, buy their agricultural machinery on credit, payment being predicated on the success of the crops and of paying prices for them. As a result of the agricultural depression in the West in 1893, 1894, 1895, and 1896, it is hardly too much to say that the farming implements used during the past five years in the United States have been literally wearing out.

The large concerns have been carrying their customers on credit, and, with large debts outstanding, the farmers, generally speaking, have been awaiting the return of better times and better prices. The favorable conditions of a year ago were not without their effect on this branch of business, and those of this year are being reflected in the enlarged market for farming machinery, reapers, thrashers, plows, rakes, binders, scythes, and harrows.

At the head of the States of the country in the volume of its manufacture of agricultural implements is Illinois, with an invested capital of nearly \$60,000,000, Ohio follows, then New York, and then Wisconsin. Ohio supplies most of the Southern market of demand, and New York, the Middle, and Eastern States. Of recent years California has developed its manufacture of farming implements largely.

**Brick Monuments.**

"Brick," an excellent trade journal devoted to the clay industries, recently published an interesting photograph of a monument which seems to open a new future for brick and at the same time will tend to relieve the granite and marble monotony of our cemeteries. The monument consisted of a square pier 33 inches square at the base, 7 feet high, and resting on a base 5 feet square. The pier is built of brown-faced brick with marble trimmings and four marble panels. At the top is a series of steps capped by a marble cover, finished with an urn. The base is built of brown rock-faced brick outside and brown smooth-faced brick inside. A monument of this kind could be easily erected

anywhere in the country, and the designs for such monuments would be almost limitless. Of course, a granite or marble monument of considerable size can only be carried to cemeteries and erected with considerable difficulty and expense; so, if for no other reason, the brick monument is interesting on account of the portability of the materials. The enduring quality of brick when properly laid ought to commend the idea at once.

**The Current Supplement.**

The current SUPPLEMENT, No. 1190, contains a number of papers of remarkable interest. The first in importance is, without doubt, the "Ghost Dance," an article specially prepared for the SUPPLEMENT by Cosmos Mindeleff. It is particularly timely at the present day, as there has been an outbreak by the Indians in the Northwest. The article is illustrated by five engravings from reports of the Bureau of Ethnology. "The Discovery of New Chemical Elements," by Clemens Winkler, is a most interesting and important chemical study, especially when taken in connection with another article which is published in this issue—C. F. Brush's "A New Gas." This is a full paper, which Mr. Brush presented at the American Association for the Advancement of Science, on "Etherion." "Excavations at Corinth" is an interesting paper by Prof. Rufus B. Richardson, director of the American School at Athens. "Electroplating on Wood" is an article giving full formulas. "The Inaugural Address" of Sir William Crookes before the British Association is concluded in this number.

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**RECENTLY PATENTED INVENTIONS.**

**Bicycle Appliances.**

**BICYCLE-HOLDER.**—DAVID A. BROWN, Woodbridge, N. J., and FRANK M. WILLIAMS, Belleville, N. Y. By providing a bicycle-support comprising a loop forwardly curved at its upper portion and mounted to swing on a vertical wall, an arm extended from the lower end of the loop, and a frame-engaging plate on the arm, these inventors are enabled to hold a bicycle securely against the wall of a building, baggage-car, or the like. When placed in the holder, the front wheel of the bicycle rests upon the loop, the frame-engaging plate supporting the bicycle free from the floor.

**BICYCLE.**—PHILIP J. PARKER, New York city. This bicycle belongs to the chainless type and is so constructed that the driving power is directed from the center of the pedal-shaft and not from the side. By this means the inventor claims that the strains on the two sides of a bicycle frame are equalized and that a much larger driving-gear can be used than has hitherto been possible. By having the rear wheel at one side of a line drawn from the front wheel, three gear-wheels may be used, the least number that can be employed, thereby reducing the friction.

**Engineering Improvements.**

**ROTARY ENGINE.**—JAMES C. WALKER, Waco, Tex. This invention embodies an improvement whereby the abutment-slides and inlet-valve devices forming part of an engine, patented by the same inventor may be more efficiently operated. The engine comprises a nest of cylinders. On the drive-shaft the disks which carry the cam-devices for operating the abutment-slide valves are fixedly mounted. For the cylinders a cut-off valve mechanism is provided. Lever-devices are employed to produce a reciprocating action of these valve-mechanisms. On a drive-shaft geared with the main drive-shaft, centrifugally-operated cut-off devices are mounted and held to engage and impart a reciprocating action to the valve-shifting-lever devices.

**Mechanical Devices.**

**DRILLING-TOOL.**—WILLIAM H. SKINNER, Darlington, La. Within the casing of this tool a bit-stock is mounted to rotate and is provided with a socket-end. In the end of the bit opposite the socket-end, a feed-screw is fitted and provided with a centering point and two grooves below the point. Over the end of the feed-screw a cap is fitted in which a set-screw is located and adapted to enter either of the grooves to cover or expose the centering point.

**GIRDER-RAIL GROOVE-CLEANER.**—LOUIS F. MEYER, Richmond, Va. This device comprises a laterally-movable plow and a brush located in the rear thereof and held from lateral movement, the brush being arranged to run directly behind the plow when the latter is in normal position, as when cleaning a straight rail. This invention, it is claimed, will dispense with the services of a force of rail-cleaners and perform the work more thoroughly than is ordinarily accomplished by hand.

**GRINDING AND PULVERIZING MACHINE.**—JOHANN POETTGENS, Berlin, Germany. One of the distinguishing features of this machine is the novel shape of the inner wall of the stationary "drum" or chamber inclosing the grinding or pulverizing mechanism. The arrangement of a series of grinders or beaters, whereby these are adapted to act by centrifugal force upon or in conjunction with the non-circular inner surface of the drum in such a manner that the substance is dis-

integrated alternately by attrition and pounding, is also noteworthy. In addition to this, the beaters may operate under the action and control of springs designated to fulfil the double object of increasing the effect of the beaters and as far as possible preventing their recoil.

**EXCAVATOR.**—NEWSOME C. WRIGHT, Nashville, Tenn. This apparatus is especially adapted for use in excavating foundations, sewers, ditches, and the like, and consists of a bed-frame or platform on which power-boisting mechanism is mounted and a longitudinally-extending guideway, along which a block-frame is movable. A hoisting-line, a backing line, and a line for operating the block-frame are provided and connected with their respective drums on the hoisting-mechanism. The inventor has also provided means by which the scraper may be filled and dragged to the hoisting devices. After having been filled the scraper will be elevated and swung to any point, unloaded, and returned to the excavation by the backing line.

**TIRE-SETTING MACHINE.**—CHRISTIAN MATHISEN, Fredericksburg, Tex. The purpose of this invention is to provide a machine whereby a tire can be quickly set cold upon a rim. The machine has a lever adapted to be temporarily fulcrumed at the hub of a wheel. On the lever a roller is journaled and adapted to engage the inside of the tire. A bearer is also journaled on the lever and adapted to engage the edge of the tire. On a slide, adjustably held on the lever, a second roller is journaled and adapted to engage the peripheral surface of the wheel rim. Means are provided for moving the slide on the lever.

**KNITTING-MACHINE.**—ISAAC W. LAMB, Perry, Mich. The machine devised by this inventor is especially designed to knit fabrics composed of two ribbed fabrics, the selvage yarn of one fabric being extended between the front and back loops of the selvage of the other fabric to form the two in one piece. The machine is provided with needle-plates on which sets of needles are located. Yarn-carriers carry the yarn to the corresponding sets of needles. A sewing-needle is mounted between the two sets of needles on one of the needle-plates to join the fabrics formed by the sets of needles. Means are provided for imparting movement to the sets of needles and to the sewing-needle. Mechanism is also provided for shifting the sewing-needle into a preliminary position to receive the second yarn from one of the carriers, without causing the sewing-needle to cast its old loop.

**MACHINE FOR SORTING FRUIT OR VEGETABLES.**—A. O. DILLMAN, South Haven, Mich. This fruit-assorter has an assorting roll provided with a gravity blade having movement to and from the periphery of the roll. An assorting table having a hinged section is arranged for contact with the blade when the blade extends beyond the periphery of the roll. The fruit is fed from a delivery-trough. As the rolls revolve, the spaces therein assume a vertical position. The mouths of the spaces being uppermost, the fans or blades will drop down into the spaces; but when the mouth portion of the spaces on the assorting rolls faces downwardly the blades drop out. As the rolls continue to revolve, the fruit that has been unable to pass between the rolls will be taken and carried to the next roll between which the space is wider.

**CLOTH-CUTTING MACHINE.**—NICOLAS KOMOW, New York city. In this cloth-cutting machine an electric motor is used to impart rotary motion to a revolvable cutter journaled in a hollow standard. The drive-shaft extends down into the hollow standard and is pro-

vided with a beveled pinion on its end. A beveled gear is mounted in the hollow standard and engages the beveled pinion of the motor shaft. The cutter is secured to and revolves with the gear-wheel. When using this machine the operator has a clear view of the cloth ahead, thus enabling him to cut accurately along the desired line.

**GEAR-CUTTING MACHINE.**—NELSON A. WHEELER, Stockton, Cal. With this machine a great variety of adjustments can be made, so that gear-teeth of various types can be cut therewith. With the work-holder a cutter-guide is connected, the axis of which is arranged at an angle to that of the work-holder. The cutter is mounted to reciprocate on the guide. The guide is adjustable on a bracket transversely of the direction in which the cutter reciprocates, the bracket being pivotally mounted to permit its angle to be changed relatively to the work-holder.

**COIN-COUNTER.**—CHARLES J. WOLF, Memphis, Tenn. This invention is an apparatus for receiving money and for making change automatically, both operations being effected upon striking a key denoting the amount of the purchase. On the base of the machine is situated a casing which is flanked on each side by two small drums. The casing contains devices for receiving the coins and expelling the change thereof. The drums are constructed to receive the paper notes, and upon the action of certain elements, to permit the extraction of the requisite change in paper money. The coin devices comprise a coin-stack for each denomination, each stack having keys and ejectors to control and push out the several coins. The arrangement is such that, upon inserting the money tendered in payment for goods received into the machine, and upon striking a key denoting the amount of the bill or purchase, the amount of money representing the change will be ejected from the money receptacles of the apparatus.

**Miscellaneous Inventions.**

**HOLDER FOR NURSING-BOTTLES.**—ALEXANDER C. BUCK, Jamesburg, N. J. This holder has a base provided with a contracted front portion extended upwardly to form a standard. A spring-lug is located at each side of the base. Another spring-lug is located at the rear portion of the base. These lugs support the bottle in connection with an orifice through which the neck of the bottle extends.

**HEN'S NEST.**—MILO S. BARNES, Garner, Iowa. The hen's nest provided by this inventor is so arranged that when a hen steps upon the nest-box, a bar rotates and fingers close up behind her, thus preventing the entrance of a second hen. When the hen desires to leave the nest, she steps upon a platform, which action causes the fingers to fall and raises the box ready for action a second time.

**SAFETY ATTACHMENT FOR FIREARM-LOCKS.**—ORLANDO ROSE, Crown Point, Ind. The purpose of this invention is to provide an attachment for guns or revolvers that will prevent the hammer from being moved to explode the cartridge before it is fully cocked. The movement of the hammer to a full cock brings a trip-lever under the locking or safety-lever to hold it out of the path of the hammer, the hammer operating the trip-lever to free the safety-lever.

**RACE-TRACK FOR DOGS.**—MICHAEL WALSH, New York city. With this improved track the speed of dogs may be tested in such a manner that the animals are completely unencumbered by harness or the like. Movable in the track is a support adapted to carry a dummy hare or other object in view of the pursuing dogs.

The support is moved forward in front of the dogs by means of a motor.

**FUR-TRIMMING FOR LADIES' HATS.**—JOHN F. VORCK, New York city. The fur feathers comprising this hat-trimming consist of fur quills and a core thereof, and a base to which the inner ends of the feathers are secured.

**GAME-APPARATUS.**—HENRY T. PYCROFT, Parnell, Auckland, New Zealand. In this apparatus, two boards are mounted on a base and adapted to be inclined oppositely. A cage is mounted at the upper end of each board. In using the apparatus, balls are first placed in the cages. At a signal, the players, two in number, simultaneously release the balls. Then with an arresting instrument the players each endeavor to stop the balls. When a ball is arrested, the player scores as many points as there are units marked in the place where the ball has been stopped. Should the ball, however, be not arrested, it rolls into one of several compartments. The number of units marked in the compartment in which the ball has come to rest denote the number of points scored by the opponent of the player who has been unsuccessful in arresting the ball.

**ATTACHMENT FOR SHOES.**—ROBERT M. HAYWARD, New York city. The inventor of this attachment arranges a strip of yielding material within the shoe or boot at the side occupied by the big toe. The strip is designed to keep the toe in its proper position to prevent the formation of "bunions."

**BROILING AND TOASTING DEVICE.**—ELLA M. ALDERSON, Asbury, W. Va. This broiler and toaster comprises a body having a top wall and two end walls, a carrier-rod passing through the end walls and having handles on the ends which frictionally engage these walls to prevent accidental rotation, and a series of spaced hanger-fingers on the hanger-rod, adapted to receive and hold material to be broiled or toasted, by hanging the material on the pointed ends of the fingers.

**BARREL.**—MERRILL H. TILGHAM, Norfolk, Va. The head of this barrel is composed of a number of sections overlapped at their ends, curved at their outer sides to fit the barrel and provided with an open space between their inner edges adapted to permit the insertion of truck and to be closed by a cross-slat.

**Designs.**

**MATCH-BOX.**—JAMES J. B. McELRATH, Centre, Ala. The match-box forming the subject of this design has a shield-like body, surmounted by a compass, the lower ends of the legs merging into the shield. A square crosses the compass and connects with the central upper portion of the shield. Between the square and the compass the letter "G" is mounted.

**FABRIC.**—WILLIAM KEIL, New York city. The leading feature of this design consists in a striped body and panels into which the stripes merge, and in floral decorations for the border thereof.

**FABRIC.**—WILLIAM KEIL, New York city. This design provides a fabric having a body and a border. The body has alternate checkered and foliated stripes. The border is separated from the body by an ornamental bar and is decorated with foliate cruciform figures, alternating with spire foliate figures. The border is further decorated with a skirting, having festoon-connected foliate pieces.

**NOTE.**—Copies of any of these patents will be furnished by Munn & Co. for 10 cents each. Please send the name of the patentee, title of the invention, and date of this paper.