

## RECENTLY PATENTED INVENTIONS.

## Agricultural Implements.

**CULTIVATOR.**—WILLIAM H. SHERIDAN, Sadler, Tex. The invention is an improvement in a class of cultivators provided with wheels, and two or more cultivating implements adapted to work in adjacent parallel rows. The cultivator is also arranged for use in turning out or digging potatoes. Various vertical and lateral adjustments can be made to suit the different conditions of work.

**COTTON-SEED HULL PRESS.**—WILLIAM P. WILLIAMS, Spartanburg, S. C. The press comprises a baling-chamber, in which a follower is movable. A back for the upper end of the baling-chamber is arranged to stand at an angle thereto in an extension of the sides of the baling-chamber. The extended portion of the sides and back forms a feed-chute for filling the baling-chamber with the material to be baled. Above the feed-chute is a receiving-hopper, provided with a trap-door for retaining the material in the receiving-hopper when the trap-door is closed. The trap-door forms with the back, the rear portion and bottom of the feed-chute. The machine is arranged rapidly to press the cotton-seed-hulls into very compact bales without danger of the hulls' scaling or crumbling from the bale in transit.

**CLEANING AND GRADING MACHINE FOR ORANGES.**—WILLIAM W. JACOBS, Bradenton, Fla. By means of this machine oranges of various sizes can be thoroughly brushed, cleaned, and graded according to their size and delivered into separate hoppers. Broadly speaking, the invention consists of a framing on which a wheel or table is mounted. A number of stationary brushes are held by the framing adjacent to the table and arranged in circular alignment. A number of rotating brushes are carried by the table and coast with the first-named brushes to form a circular tunnel or passage in which the oranges are received.

**HOE.**—WALTER L. MITCHELL, Collins, Miss. The tool that Mr. Mitchell has invented can be adjusted to serve either as a hoe or as a shovel. In its construction it comprises but few parts. The handle and blade portion can be cast, or the socket of the handle portion can be cast or provided with a wooden shank.

## Electrical Apparatus.

**TELEPHONE-RECEIVER.**—FRANCIS J. ORR, Holland, N. Y. The characteristic features of this invention are a permanent magnet over the poles of which a metal plate is arranged, which is fastened at the center and at its edge. Secured to the plate are electromagnets, the cores of which rest movably against the permanent magnet. Forward of the electromagnets are diaphragms. The plate, vibrating at every impulse of the human voice, controls or causes a unison of the vibration of the two diaphragms with the plate. The plate is somewhat heavier than the diaphragms. The result is that one is able to hear clearly when the vibrations in the ordinary type of receiver are utterly unintelligible.

**SWITCH-SIGNAL.**—BERTIS H. URSCHER and EDMUND P. THOMAS, Sugar Ridge, O. The contrivance relates to signals for single-track electric roads, such as are used in country districts and in which turnout switches are placed at suitable distances apart. The object is to provide a signal mechanism to be operated by a moving car in such a manner as to leave a signal light at one switch and at the same time turn on a light at the next switch ahead, and upon passing the latter switch to turn out both former lamps and turn on another lamp at the second switch and one at the next or third switch. This turning on and off of lamps is effected throughout the length of the line, thus preventing possible collisions, between switches, of cars moving in a same or opposite directions.

## Engineering Improvements.

**BOILER.**—MARTIN F. KENELY, Elizabeth, N. J. The shell is connected with a bridge-wall chamber. At the front of the boiler-grate are corner-chambers connected by two sets of pipes with the bridge-wall chambers and forming the sides of a combustion-chamber. Another set of pipes connect the corner-chambers and are arranged in connection with the front of a boiler to form a fuel-inlet chamber to the combustion-chamber. A rapid circulation and heating of the water and economy in fuel are attained.

## Illuminating Devices.

**LAMP-WICK.**—HENTRI SARAFIAN, Manhattan, New York city. The wick comprises an incombustible tip and an apertured cap to connect the tip with the wick. The connection of the wick with the cap is strong and secure. There are no projections liable to interfere with the feeding or adjustment of the wick, the cap being stitched or sewn to the wick.

**LAMP.**—AXEL L. OLSON, Essex, Conn. The lamp is of the type in which the flame is produced by gas generated from a hydrocarbon-oil. A gasoline-reservoir with a peculiarly-arranged siphon-tube serves uniformly to deliver the gasoline to a retort having baffle-cups to atomize the oil. In this retort the gasoline is vaporized by the heat from a tube passing through the retort, such tube conducting the hot gas from the lamp-burner. From the re-

tort the gas is led to the burner of the lamp and there consumed.

## Vehicles and Their Accessories.

**VEHICLE.**—ROLLA A. MORTON, San José, Cal. An ordinary bicycle with certain improved parts is so combined as to form a tricycle for carrying packages or other freight. Movable relatively to the bicycle is a frame, the outer part of which carries a wheel. This vehicle, comprising therefore two wheeled members adjustably connected with each other, is provided with a spring-supported motor carried by one of the members. The motor and the wheel of its member are geared together.

**VEHICLE BRAKE.**—BARTON W. SCOTT, San José, Cal. The momentum of the vehicle is used to furnish the principal force for the application of the brake. The brake-shoe is mounted so that it will bear on a surface disposed tangentially to the periphery of the wheel, means being provided to control the position of the brake-shoe. When the shoe is engaged with the wheel, the shoe will be pressed against the tangential surface; and this surface will then act to force the shoe more firmly against the wheel.

**TIRE.**—EARL C. and FRANK P. WHITAKER, Providence, R. I. The tire consists of a resilient tube with a smooth outer surface and a honey-combed inner surface, a resilient core extending through the tube and engaging the honeycombed inner surface. All the merits of the pneumatic tire are claimed, without the disadvantage of inflating the tire. Punctures are impossible.

**TRACE-HITCHER.**—WALTER W. MEREDITH, Akron, Iowa. By means of this device a trace can be quickly attached or released. The necessity of forming eyes in the trace, which has a tendency to weaken it, or of attaching tug-eyes to the trace is avoided. The trace can be adjusted as to length without taking it up or letting it out in the harness.

**THRILL COUPLING AND DETACHER.**—GEORGE H. TATGE, Osmond, Neb. The object of this invention is to provide a novel simple device attachable upon the front axle of a vehicle and adapted to connect the thrill-irons therewith, so as to permit their instant detachment while the vehicle is in use to prevent possible accident and injury to the occupants of the vehicle.

## Metallurgical Implements.

**COMBINED ORE ROASTER AND SMELTER.**—PETER KIRK, Phoenix, Ariz. Ores bearing silver, lead, copper, gold must be roasted before smelting, since they contain too much sulphur, which should be reduced to seven per cent. The present apparatus effects this preliminary roasting and also the subsequent smelting continuously, with great saving in heat and labor. The invention is an improvement upon that form of combined smelting and roasting furnace in which two vertical roasting chambers communicate at the bottom with the opposite ends of the hearth of a smelting-chamber and at the top with a stack by means of a damper. The vertical roasting-chambers are arranged to operate alternately on the Siemens regenerative principle. Liquid fuel with steam can be used in roasting.

## Medical Appliances.

**HERNIAL TRUSS.**—LOUIS ROPERS, Lincoln, Ill. The truss permits the free and easy movement of the body, so that it can be worn in comfort. To this end it consists in the special construction of the parts of the pad in relation to the body-belt and adjusting devices, and also in the peculiar nature of the body-belt itself.

**HERNIAL TRUSS.**—GEORGE V. HOUSE, Mount Vernon, N. Y.—The pad is readily adjustable to various positions on the front piece and can be turned in any lateral direction or moved up or down on the front piece, so as to bring the pad into the most suitable position. The pressure can be distributed on different portions of the pad.

## Mechanical Devices.

**ADDING MACHINE.**—JAMES J. WALSH, Elizabeth, N. J. The adding machine, called the "calculometer," is one of the smallest and most compact calculators that has ever come to our notice. The size is such that it can be very readily slipped in the pocket. The machine not only adds and subtracts, but also divides and multiplies. With a little practice problems in square root, cube root, interest, discount and percentage can be solved. In construction this machine is most durable; in operation highly efficient. We have seen formidable columns of figures added by its means with a speed and accuracy that no expert accountant could ever hope to attain. No mental effort whatever is involved in performing the necessary operation.

**CRUSHER.**—WILLIAM E. JOHNSON, Joplin, Mo. Mr. Johnson has devised a direct-acting crusher having no parts liable to great wear except the jaws. The movable jaw has but a slight movement with no lost motion and is so constructed that adjustments can be made while the machine is running, for crushing fine or coarse, thus resulting in the performance of a greater amount of work in a given time than is possible with crushers that must be stopped for adjustment.

**METAL-BENDING MACHINE.**—CHARLES B. GARDINER, and DAVID F. RANNEY, Raynham,

Mass. The machine is designed to bend or form steel shanks for shoes, but can be employed for bending metal for other purposes as well. The machine is practically automatic in its operation and performs work much faster than is possible with metal-bending machines in which the blanks are fed through the dies by hand.

**TURNING AND BORING LATHE.**—DEFIANCE MACHINE WORKS, Defiance, Ohio. This turning and boring lathe is the invention of Mr. George A. Ensign, whose patented wood-working machinery we have frequently had occasion to notice in these columns. The present machine, an improved turning and boring lathe, is designed rapidly and accurately to produce various articles from wood, and is arranged completely to bore, turn, polish, and cut off the article from the stock, so that no further hand labor is required, the articles leaving the lathe sharp, clean, and smooth.

**APPARATUS FOR SOLDERING BOTTOMS OR TOPS OF TIN CANS.**—EMILE BESSE AND LOUIS LUBIN, Rue St. Lazare 97, Paris, France. The invention is an apparatus for automatically soldering tin boxes for preserved food-stuffs and the like. The can-soldering machine has a can-holder comprising an annular main portion and a relatively-thin plate or web extending throughout the area thereof and formed with openings therein adjacent to the edge of the plate. A soldering-iron is formed with upwardly-projecting portions adapted to extend through the openings in the plate to contact with the can. The apparatus serves to solder the tops or lids on plain boxes, which it would be impossible to turn upside down without disturbing their contents.

**SAW-SETTING MACHINE.**—WILLIAM L. HOLCOMB, Grand Haven, Mich. The machine affords convenient means for quickly and perfectly setting the teeth of a saw by bending alternate teeth of the blade to an equal degree from each side, thus setting all the teeth of a saw in one operation of the machine.

**APPARATUS FOR ASSISTING IN MAKING PIANO-BACKS.**—CHARLES H. BROMM, Saginaw, Mich. The invention provides a frame and clamp to hold together the parts of piano-backs or other structures during the work of assembling them. Combined with a base is a tilting-bar adapted to carry a clamping-frame and its work. Pins, carried on a hand-screw are removably engaged with the tilting-bar. The work can be forced against the gage-block, thereby bringing all the parts together in square.

**CIGARETTE-MAKING MACHINE.**—HENRI H. BOBIN, Rue de Paris, Pantin, France. The machine consists of two parts, the one intended to prepare the roll of tobacco around which a leaf of paper is to be rolled and afterward to affect the rolling of this paper in order to form the cigarette; the other part being intended to gum or fasten the paper leaf and during transit to place it in a suitable position to be engaged by the previously-mentioned mechanism for forming the cigarette.

**HAY OR STRAW BALING MACHINE.**—RICHARD F. MCKAIG, Wever, Iowa. The inventor has patented an automatic device for wiring bales of hay or straw in a press, particularly power and steam presses, and in connection with straw-presses adapted for attachment to threshing-machines, so that all the straw can be baled as it comes from the machine. The division or partition box usually employed is dispensed with. As soon as the bale is completed the wiring device is thrown into gear, the bale is immediately wired, and the wire is twisted and cut at the twist therein, and other wires laid for another bale.

**MUSIC-LEAF TURNER.**—EMIL J. MOLLER, Maryborough, Queensland. When the musician desires to turn a leaf he has but to press a pedal on a piano, or a knee-lever on a music-stand for violin. The apparatus is constructed in such a manner that it can also turn the leaves back if repetition of the music be required. The apparatus consists in the main of a number of arms, each of which carries two upright fingers, between which the leaf is placed. The one end of the arms is placed on a vertical spindle, on which they are worked forward and backward by a suitable mechanism.

**MOTOR APPARATUS.**—JOHN E. TYLER, Roxobel, N. C. By reason of the peculiar construction of his motor the inventor is enabled to utilize motion given to a descending column of water in connection with a tank containing compressed air, to operate an ascending column of water in a pipe leading from the main tank containing compressed air. A water-wheel is thereby operated to impart motion to any desired machinery. The invention includes a combination of supply-pipes leading to their respective main air-tanks, a discharge-pipe leading from one of these pipes, and a compound expansion-engine, whereby the pistons, operating to give momentum to the columns of water in the several supply pipes, can be expansively operated.

**FIRE-ESCAPE.**—WILL B. WOOD, Shamokin, Pa. The improved fire-escape is designed to enable persons to lower themselves in safety from a burning building. In some of its features the device is applicable for use as a safety apparatus for elevators or inclined railways. The device is of the kind in which the movement of the casing over the rope, or of the rope through the casing is retarded and regulated by a centrifugal governor and brake.

**AIRSHIP.**—ROBERT H. BOTTS, Richmond, East Yards, Cal. The inventor has endeavored to devise a practicable, safe, and trustworthy form of airship, constructed with the lightest and strongest framework and provided with propellers for raising and lowering the entire vessel. A gas-bag of peculiar construction is employed. Steering devices direct the course of the airship. The gas-bag is of annular form and of such character that it serves during flight as an aeroplane and also, in descending, as a parachute.

**TYPEWRITER.**—JUAN B. VIDAL, Havana, Cuba. Mr. Vidal has devised an arrangement of keys to enable the operator readily to operate the machine with a very slight movement of the fingers. A series of depressible keys and two series of keys movable forwardly and rearwardly are provided. One of the latter series is located in advance, and the other in the rear of the depressible keys. The forwardly and rearwardly movable keys project upwardly beyond the depressible keys immediately adjacent thereto, so that a finger engaging a depressible key may, by a slight movement, operate the adjacent key of the second kind, and the latter key will form a stop to guide the finger to the depressible key.

## Railway Contrivances.

**DUST-GUARD.**—HARRY C. TAZEWEILL, Wilmington, Del. A carrier has an opening for packing devices, in which opening is a packing-ring secured to a spring-ring. One end of the spring-ring is fastened to the carrier, the other end being free. This free end of the spring-ring is operated upon to expand the packing-ring. The dust-guard efficiently serves its purpose. The packing can be conveniently renewed when necessary.

**TICKET-HOLDER.**—DAVID B. METCALF, Tarrytown, N. Y. To facilitate the work of the conductor and to relieve the passenger of much trouble, Mr. Metcalf intends to hold the ticket in a simple device secured to the top of the seat. The holder saves the conductor the trouble of asking for the ticket and the passenger the trouble of producing it.

**AUTOMATIC SAFETY GEAR AND SIGNAL SYSTEM.**—WILLIAM W. MURCH, Brooklyn, New York city. The invention is a block system for railways. The purpose is to provide an improved, automatic safety gear and signal system designed mechanically to set the signals for the different blocks or sections by the passing trains and for preventing collisions by automatically shutting off the steam and applying the brakes to bring the train to a standstill without any action on the part of the engineer, in case he should have disregarded a danger signal and should be about to pass upon a section of the road occupied by another train.

**CAR-WHEEL.**—HARRY C. TAZEWEILL, Wilmington, Del. The invention is an improvement in car-wheels, relating particularly to the construction of the wheel. Means are provided for lubricating the wheel, securing it upon the axle, and preventing the entrance of dust between the wheel and the box.

## Miscellaneous Inventions.

**MARINE VESSEL.**—WILLIAM NIEMEYER, St. Joseph, Mo. The vessel has a peculiar form of hull, which enables it to move through the water, according to the inventor, with less resistance than has heretofore been possible. The vessel is constructed with a square stern; and this square stern is provided with a scoop-like rearward projection, leaving an air space to avoid the suction or drag resulting from the passage of the hull through the water.

**FILING-CABINET.**—SAMUEL T. YOUNG, Glasgow, Ky. This filing-cabinet for deposit-slips, canceled checks, and the like, consists of a stand, a body having flat side sections, and a flange extending outwardly at the base. Opposite the flat sides are filing-pins arranged to receive the filed papers, the end edges of which rest against the flat sides. The papers may hang over the edge of the flange-plate.

**APPARATUS FOR FILING CANCELED CHECKS OR OTHER PAPERS.**—SAMUEL T. YOUNG, Glasgow, Ky. The apparatus consists of a frame having a series of steps on which are narrow boards, each separated from the riser in front and in the rear by a narrow space. On the boards a series of separable and vertical filing and canceling points are secured. The boards are thus spaced to permit the fingers to run along both sides for the purpose of looking up any particular check or collection of checks. Any check or voucher can be readily found at any time, so that it is an easy matter to learn the exact standing of any account.

**METHOD OF PURIFYING WATER.**—WALTER DERVAUX, Brussels, Belgium. It is well known that lime water can be purified by boiling, whereby carbonic acid is liberated, and calcium carbonate precipitated. This invention relates to the purification of water by the ebullition process and has for its object to provide certain improvements whereby a thorough and easily regulated physical and chemical action is obtained.

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