

## ENGINEERING INVENTIONS.

An improved car starter, the object of which is to afford increased facilities for starting a street car or other draught vehicle, and of preventing a retrograde movement of the car when stopped on an upgrade, has been patented by Mr. William H. Harrison, of Louisville, Ky. The invention consists in a novel construction and combination of devices for these purposes, and in a special construction of parts whereby the starter may be readily applied to the axle of a car or be detached therefrom, without removing the axle or wheels of the car or otherwise disturbing the connection of the running gear with the body of the car.

Messrs. John J. O'Connor and Ralph M. White, of Wellsville, N. Y., have patented an improved car coupling. The invention consists in drawbars formed with double hooks of spear head form, the taper or bevel of the heads being upon the upper and under side, so that when two cars are brought together the hooks shall pass one above the other and engage by their shoulders. Springs are attached to the sides of the drawbar to retain it in a central position horizontally, and a spring is likewise attached to the upper side of the drawbar to press the bars downward and retain the hooks in engagement. The rods which operate the mechanism pass to the top of the car as well as to the side. The inventor claims for his coupling its special advantage for freight cars.

An improved car coupling has been patented by Messrs. James M. Dulaney and Thomas Owens, of Topeka, Kan. The invention consists of a drawhead containing a movable buffer block, which is projected and held in position to receive the shock by a spring located at its rear. A tube projecting downward is located at the opening of the drawhead and carries a coupling pin which rests on a spiral spring within the tube. When the coupling is to be effected, the coupling pin is held down in the receiving tube by a lip which passes over the top of the tube, and which is attached to the under side of the buffer block. When the coupling link enters the drawhead, the buffer block is driven home and the coupling pin being no longer held by the lip attached to the buffer is liberated and enters the link. A lever is arranged for holding the link in position when the coupling takes place, and another lever is likewise connected with the lower end of the coupling pin, by which the pin may be withdrawn in uncoupling and to which also weights may be applied at its extremities to take the place of the spring in the tube should this be necessary. There is an ingenious device for elevating or lowering the drawhead for cars of unequal height.

## MECHANICAL INVENTIONS.

A spout for oil cans, which is of strong and durable make, has been patented by Mr. John Kaye, of Cardington, Pa. The invention consists in winding wire closely around the spout of oil cans and soldering the upper end of the wire to the body of the spout.

A very simple and effective brake for vehicles has been patented by Mr. Ephraim R. Kugler, of Kingwood, N. J., which consists of a spiral wheel to which is connected the brake shaft and connecting rod. The special object of this invention is to avoid the necessity of a spring to detach the brakes, as is required in the usual kind.

Mr. Friederich Cajar, of New York city, is the inventor and patentee of an improvement in pipe wrenches. The invention consists in an additional jaw, which is held in place and operated by a toothed disk. The two jaws are brought together with such force, by means of the mechanism employed, that the pipe is grasped with unusual firmness.

An improved motor for working pumps and driving other light machinery has been patented by Mr. John Harris, of Columbus, Neb. The invention consists in a water wheel connected by a driving shaft with a drum and weight box. With the driving shaft is connected, by gearing, a crank shaft, pitman, and weighted vibrating levers, to assist in driving the machinery and to regulate its motion.

Mr. John Albey, of Montclair, N. J., has patented an improved automatic guide for paper machines. The object of this invention is to provide a guide for the webs of paper machines, which will automatically keep the webs in the center of the rollers over which they pass, and thus prevent the edges of the webs from running in contact with the frame of the machine and becoming worn, folded, and cut by such contact.

An improved cavity plane has been patented by Mr. James England, of New York city. The object of this tool is to provide a frame which may answer for holding tools of various kinds used by carpenters, coopers, and like wood workers. A provision is made for adjusting the face plate of the tool to different distances, so that a deeper or more shallow groove may be cut at the will of the operator. The same implement comprises a shave as well as grooving tool.

An improved ore sizing apparatus has been patented by Mr. Ira F. Monell, of Crisman, Col. The apparatus consists of a series of successively lower and finer sieves and of a series of successively lower aprons, each carrying the finer ore to the next lower sieve in the series until the last apron is reached, and also of cross troughs with water supply pipes at the ends of the sieves to carry off one grade of coarse ore after each sifting, whereby the ore will be separated into as many grades as there are sieves, all being ready for the process of concentration or amalgamation.

Mr. John G. Bronson, of Chicago, Ill., has patented a window ventilator. A sash or deflector plate about one-third of the height of an ordinary sash is located on the sill from one to six inches inside of the lower sash, and is arranged to slide up or down into a recess in the sill in the same manner as the car window slide into the wall of the car. If fresh air is to be admitted into the apartment, the lower sash is raised more or less, and the current of air entering through the space between the bottom of the sash and the sill will strike against the deflector plate, and will be guided or deflected upward without creating any direct draught in the apartment.

An improved land marker has been patented by Mr. James J. Melville, of New York city. A cord is stretched across the field and kept in place by staples forced into the ground, to serve as a guide for the grooved carrying wheels of the machine. To the under side of the frame is attached a bar, the angular ends of which fit into the grooves of the guide wheels, to keep the said grooves clear of soil, so that they will receive and travel upon the guide cord. The guide cord is laid at a uniform distance from its previous position by means of a spacing bar. To the faces of the wheels are fastened lance-shaped blades or points to form holes in the soil to receive the seeds or plants.

An invention pertaining to the manufacture of sulphuric acid has been patented by Mr. Thomas D. Dotterer, of Charleston, S. C. In the manufacture of sulphuric acid the gas which is blown off by the wind often has a very injurious effect upon crops and vegetation in the vicinity. Under such provision, too, for the escape of the gas it has been very difficult to regulate the draught of the sulphur burning furnaces. These objections are overcome by stopping off the gases on top of the chamber or tower into which they escape from the acid chambers, and drawing or forcing them down into a condenser or receiver, into which water is admitted, and from thence through a vapor bath supplied by steam and water jets. The office of the condenser is to regulate the draught of the acid chamber, and to condense the fumes at or near the surface of the ground under the control of the party having charge of the acid chambers.

An improved railroad signal lantern has been patented by Mr. James H. Berry, of Greenville, S. C. This signal lantern is composed of two cylindrical cases, the outer one being stationary and the inner one made to revolve inside the outer case. The stationary case is provided with two lens tubes situated opposite each other and mounted with plain glass. The inner case is provided with similar tubes, but instead of plain glass they have colored lenses. Within the inside case the lantern is placed, and at the will of the attendant the inner case is turned until the color of lens desired to convey the signal comes in line with the lens tube in the outer cylinder where it is held and locked. The signal may be operated by a cord at some distance away, or held in the hand of the switch tender. By an ingenious arrangement provision is also made for exposing a flag and light of the same color at the same time.

## AGRICULTURAL INVENTIONS.

Mr. George W. Carr, of New York city, has patented an improved guide wheel for plows. The invention consists in a metal guide wheel for a plow, made in sections transversely of the axis of the wheel. The wheel is of a close box form, with plain surfaces on its sides, thereby preventing clogging.

Mr. George Lettenmyer, of Little Georgetown, W. Va., has patented some improvements upon the harrow for which he received letters patent 214,671 on April 22, 1879. Two pivoted lever bars are furnished, one of which is so mounted and constructed as to reverse the harrow teeth for the purpose of avoiding any obstruction that may be in the way, and the other is designed to bring the harrow teeth back to the vertical when the opposing object has been passed. The special improvements claimed for this invention consist in the reversing arrangement, which is readily operated by the attendant.

An improved cotton buncher has been patented by Mr. James L. Goodin, of Montgomery, Texas. The invention consists of a wheel to roll along the rows of cotton and crush down the plants, except in certain places, where cavities in the wheel leave the bunches of plants that are to be preserved and cultivated. The wheel is also provided with knives or cutters at intervals along its face, between the cavities, for cutting and otherwise destroying the plants and weeds between the bunches to be retained, and to pulverize the soil. The wheel may be used alone or in combination with cultivators or plows at its sides.

An improved gang plow to be used in the cultivation of corn and other serials has been patented by Mr. Milton McKee Ritch, of Laurinburg, N. C. The invention consists in placing three beams parallel with one another, to which the cultivator teeth are attached, and connecting them by two screw threaded horizontal rods. By means of nuts and washers on these rods the relative distance between the plow carrying beams may be increased or diminished as the case requires, and thus the furrows brought nearer together or further apart. Devices are also supplied by which the guide handles of the plow may be separated from one another, or may be elevated to any desired position.

Mr. William F. Austin, of Greenbush, N. Y., has patented an improved potato digger. The invention consists of apparatus mounted on and geared with the wheels of a truck, by which a set of digging forks are made to revolve upon the axle and thrust into the ground in advance of the hill of potatoes. This digs them out of the ground in front of a rake which separates them from the earth and discharges them on the ground. A gang of discharging teeth suspended above the axle is made to swing backward along the forks as they pass above the rake to brush off any potatoes that may fall of discharging by the motion of the forks.

A truck for portable tracks to be used on sugar plantations has been patented by Mr. Rudolph Baumgartner, of New Orleans, La. The truck is mounted upon a pair of central wheels, and the coupling is accomplished by means of a flat bar of iron arranged lengthwise under the center of the frame of each truck, which bar is provided with openings at the ends to receive connecting links, into which are inserted the locking pins. The truck may be moved by hand or by horse or mule power. The track is made exceedingly light, so that it may be removed easily from place to place, and is of simple construction, requiring little more than a few boards and nails.

An improved cotton planter and cultivator has been patented by Mr. Burrell Morris, of Newton Factory, Ga. The invention consists of a rectangular frame carrying plows suitably arranged for cultivating,

which plows may be detached when desired. Within the side bars of the frame is hung on an axle a revolving cylinder which is perforated at regular intervals to permit the reel to pass through. When the machine is to be used for planting, one plow is arranged in front for opening the furrow and two plows are arranged behind the cylinder for closing the furrow after the seed is planted; but if the machine is to be used simply as a cultivator, the cylinder is removed altogether and more plows are attached.

A potato digger of novel device has been patented by Mr. Samuel P. Hedges, of Greenport, N. Y. The invention consists in a potato digger constructed with a carriage, having suspended therefrom a fork plow, adjusted by a lever, a crank shaft, and connecting rods. From the frame of the carriage, in the rear of the fork plow, is suspended by hinged bars a shaft provided with curved fingers, arranged to pass up between the plow prongs, and with stops to cause and limit its movements, whereby the potatoes are raised from the plow and separated from the soil. To arms formed upon the hinged bars, the separator is attached a cross-bar provided with fingers to receive the potatoes from the plow and separator, to sift out the adhering soil, and deposit the potatoes in a row upon the ground.

A cotton picker of simple and inexpensive construction, and designed to be operated by hand, has been patented by Mr. George N. Todd, of Little Rock, Ark. The invention consists of a light frame with sides converging at the front end and provided on the outside with canvas to prevent the cotton boll from being thrown off and falling to the ground. The machine is mounted on wheels, and is propelled by hand directly over the cotton row, so that each plant is brought successively between the inner sides of the machine and in contact with the cylinder rollers, which are rotated by the revolution of the wheels of the machine. The pickers are arranged horizontally one above the other in two series on each side of the passage way, and being geared together by a continuous train of wheels are made to rotate toward one another in pairs, so that the cotton will be effectually stripped from the bush and lodged in spaces on each side of the case, whence it may be removed and placed in baskets at the end of each row.

## MISCELLANEOUS INVENTIONS.

A hydraulic cement composed of iron slag, soapstone, clay, and burnt lime of about two parts of the slag to one of each of the other ingredients is the subject of a patent by Mr. John Murphy, of Columbus, O.

An improved bed spring has been patented by Mr. Philander R. Philes, of Carmi, Ill. The invention consists of spiral springs having loops formed at the ends of the uppermost coils, forming a series of semicircles, all made in one continuous piece of wire.

A device for attaching fans to rocking chairs and cradles has been patented by Mr. Moses Cohen, of Hallettsville, Tex. The invention consists of a fan secured to the back of a rocking chair or cradle, and so contrived as to be oscillated by the rocking motion of the object to which it is attached.

An improved last block fastener has been patented by Mr. Rodney Butterfield, of Chicago, Ill. This invention consists of a rod with a T-head, located in the last block, so as to enter a slotted locking plate on the shoulder of the ledge of the last against which the block bears.

An improved oil stone holder, constructed in such a manner that it can be adjusted so that either of its four longitudinal surfaces will be on top, has been patented by Mr. Frank H. Gowell, of Boston, Mass. The stone is suspended in its form by two pivots and held in position for use by means of a set screw to prevent the stone turning when being used.

A novel cigar holder has been patented by Mr. Horace E. Darling, of Brainerd, Minn. The invention consists in a plate having its lower end bent hook-shaped to form a receptacle for a lighted cigar. The holder is attached to the under side of a table or desk top, or to a billiard table, the lower part extending beyond the edge of the table for the convenience of the smoker.

An improved wagon seat top, constructed so that it may be swung forward or rearward to protect the occupants of the seat from wind and rain, and held firmly in any desired position, has been patented by Mr. William Hawkins, of Oregon, Mo. This is accomplished principally by a notched catch plate which is located near the pivot bolt of the top or hood of the wagon, and into which falls a spring latch which holds the top in any position desired.

A new combination implement for sealing packages and railroad cars has been patented by Mr. Theodore E. Miller, of Houston, Tex. The invention consists of an implement combining all the tools necessary for rapidly and easily sealing railroad cars and packages with the ordinary wire or tin seals, and comprises seals of different forms for the different material to be stamped, whether it be tin, lead, etc. The implement is also provided with shears for cutting the wire or tin employed in sealing the car.

An anchor of new and ingenious device has been patented by Mr. Charles E. Willis, of Oyster Bay, N. Y., having a grapple provided with a pair of stationary flukes and a pair of adjustable flukes which are arranged at right angles with the stationary flukes when in use, and may be turned parallel with the stationary flukes for convenience in carriage when the anchor is not in use. The adjustable flukes are formed upon a socket fitted upon the shank to adapt them to be slipped up and down upon it, and the shank is made with a cylindrical part near its upper end to allow the socket of the adjustable flukes to be turned upon the shank.

An improved pulley has been patented by Messrs. Gottlieb D. Husemann and Emery A. Said, of St. Louis, Mo. This invention relates to pulleys for raising and lowering window shades, mosquito bars, bird cages, and similar objects; and consists of a pulley so constructed that it shall act as a brake, in connection with its block, to hold the cord at any desired point. By simply removing the hand from the cord, the weight of the suspended object is sufficient to wedge the cord between the scoping wad and the flange, thus holding the article at any desired height.

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Cope & Maxwell M'g Co.'s Pump adv., page 142.

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