

## ENGINEERING INVENTIONS.

A car coupling intended to promote security in coupling has been patented by W. I. Byard, of Little Falls, N. Y. The coupling is very simple in its construction, and so made that a car using it can readily be coupled to one having the link and pin coupling in ordinary use.

Mr. H. M. Glines, of East Boston, Mass., has patented an improved car brake, in which the brake bars are connected by a rod to the lower end of an arm of a shaft on another bar, which shaft has an upwardly projecting arm connected to the brake shaft. The brake shaft is provided with an aperture disk and with a sliding collar. A pin is passed through the apertures in the disk, whereby the brake shaft may be locked in any desired position.

Mr. William Whitely, of Housatonic, Mass., has patented a device to facilitate the adjusting and leveling of the roll in rag engines, and also to allow the roll to be conveniently raised and lowered while in motion. With the long arm of the rock shaft is also connected a chain and a vertical shaft provided with a ratchet wheel and pawl, so that by operating the said shaft the lighters and roll will be raised and lowered with a quick movement.

An improvement in car brake dogs has been patented recently by Mr. J. H. Pitard, of Mobile, Ala. A spring is used in connection with the pivot of the car brake staff dog, which causes the dog to engage automatically with the ratchet wheel of the staff, and lock it when set to hold the brake to its work. The means being very simple for causing the dog to engage quickly, the inventor believes that many accidents might be avoided by the introduction of his invention upon railroad cars generally.

Messrs. Thos. Ashbury, Herbert Sumner, William Lees, and Richard W. B. Sanderson, of Manchester, England, have patented a very simple and said to be effective gas engine. Two engines are located relative to each other, and rest equally on the bearings of a main shaft. The twin engines are mounted on one frame, so that the running parts will be perfectly balanced at any speed and the steam will be distributed equally, even when the explosion of the gas is permitted.

An improved car coupling has recently been patented by Mr. Squire Richard Jones, of Lacon, Ill. A hook coupler is located in the drawbar, and arranged to swing down to open for receiving the link, and provided with a crank device to be thrown down by the shock of the cars when they come together, or by hand to raise the hook and engage the link. A crank device for raising the link for coupling cars of different height, an improvement in the construction of the link to increase its strength, and for enabling it to be held up by the hook for self-coupling, is provided.

A rotary steam engine of novel construction has recently been patented by Mr. John Andrew Knight, of Marlborough, N. H. The rotating wheel carries a series of steam cylinders containing pistons and piston rods for rotating crank shafts journaled in the wheel. These crank shafts carry cog wheels which engage with a fixed cog wheel on the frame, whereby when the steam is admitted into the cylinder the cog wheels on the crank shafts will be rotated, and, as they engage with the fixed cog wheel, the wheel on which the cog wheels are mounted will necessarily rotate.

A patent has recently been granted to Mr. I. S. Freeman, of Balsam Lake, Wis., which relates to traction engine carriages of ingenious design, and intended to be propelled by steam. A car carrying the propelling machinery and fuel is supported within traction wheels of large circumference. The entire load is carried on the inside of two large traction wheels and confined by sheaves, guide wheels, or rollers, so that the weight is placed at the greatest possible distance from the center of the traction wheels, and in a frame of limited dimensions, so as to offer no obstruction in traveling over uneven roads.

Mr. Noah Jackson, of Grelton, O., has patented an improved traction engine, having vertical side frames formed with rounded ends. Around the edges of these frames are endless tracks, and upon each side there is also an endless chain provided with rollers that rest upon the tracks. Between the rollers the chains are fitted with blocks which serve as legs for support of the sides and platform. The chains and blocks together form an endless track upon which the engine is supported and moved forward. The chains are driven by sprocket wheels which receive their power from the engine. The engine is provided with an ingenious device by which it is turned or guided.

## MECHANICAL INVENTIONS.

Mr. John Q. Day, of Red Cliff, Colo., has recently patented an improved railroad snow plow. The invention consists of a rotary plow provided with knives or scrapers to gather the snow into annular channels of the drum or wheel, carrying the snow to the top of the drum or thereabout, discharging it from the channels, and throwing it off at the sides of the road.

A useful improvement in discharge pipes for dredging sand pumps and other machines has recently been patented by Mr. James M. Buckley, of Portland, Oregon. The novelty of the invention consists in a revolving discharge pipe, whereby the material passing through it is prevented from settling therein, rendering the quantity of water usually required to force the earthy materials through the discharge pipe.

Mr. Joseph Schneible, of St. Louis, Mo., is the patentee of an improved glue cutting and spreading machine. A reciprocating cutter is attached to the jelly box and a frame mounted on a traveling belt receives the slices as they are cut. To prevent the glue jelly from sticking to the drying plates, the inventor fits to the side of the jelly box other open bottomed boxes containing fibrous material soaked in water.

Mr. J. H. Moon, of Fallsington, Pa., has patented a pottery lawn constructed with a shaft having eccentrics connected by pitmen, with the lawn frames suspended by hinged hangers from bars attached to the frame of the machine. The rear ends of the supporting bars are connected with hinged screws, se-

cured adjustably to the top bars of the frame of the machine, so that the inclination of the said lawn frames can be readily regulated.

Mr. Francis M. Shields, of Coopwood, Miss., has patented an improved machine gun for war purposes, especially adapted for use in forts and upon fields for resisting charges by troops in mass. This improvement consists in a series of radiating barrels and an improved multiple charge shell holder, which may be readily and easily removed and replaced. A number of such holders are provided, and as soon as the cartridges in one have been exhausted it is replaced by another.

A novel machine for inserting pins or rivets in umbrella frames has been patented by Mr. Daniel M. Reimond, of Philadelphia, Pa. This machine is provided with a guide for holding the parts of the umbrella frame over the end of a continuous rivet wire and with a follower for pushing the parts down upon the wire, and with cutters for cutting the wire after it has been inserted. There is a feed motion which carries forward enough wire for a rivet at each movement of the machine.

A simple and effective brake applicable to pulley wheels and shafting has recently been secured by letters patent to Mr. E. E. Glover, of Terre Haute, Ind. The invention consists in a ball partially incased in a box, one side being partially open, allowing the ball to come in contact with the wheel or pulley and act as a brake. The wheel can move in one direction but not in the reverse while the ball is in contact. A spring is provided for holding the ball free from the wheel when the brake is not required.

Messrs. J. H. and D. Meltzer, and J. J. Baker, of Mezer, Ind., are the patentees of an improved straw stacker. The machine, which is mounted on wheels, is provided with an endless carrier which conveys the straw, and at the same time the beater fan forces the straw and chaff upon the carrier and prevents any portion falling back. Wire fingers are also provided to prevent the wind from blowing the straw away when it falls from the separator on to the lower end of the carrier.

A steering apparatus, whereby the rudder can be controlled and operated by one man, even in heavy weather, has recently been patented by Mr. R. O. Toole, of Perth Amboy, N. J. With the steering wheel shaft is connected, by a pair of gear wheels, a drum to receive the rudder chains, the said drum being placed upon a shaft connected at one end with the rudder wheel frame, and at the other end with a bracket on the vessel's deck. It is claimed that by this very simple arrangement of the wheel, the labor of steering a vessel is greatly diminished.

A machine for grading or leveling earth in the construction of railroads or earthwork embankments of any kind, by which great economy of labor is accomplished, has recently been patented by Mr. J. M. Buckley, of Portland, Oregon. Adjustable plows or levers are connected to a platform car. The latter is pushed along the track, forcing the dirt which has been deposited from a train to the side of the track, where it is distributed and leveled in a most complete manner. The machine may also be used for widening cuts through snowbanks.

A grinding apparatus for sharpening the knives of mowing and reaping machines is the subject of a patent recently granted to Mr. John Reniz, of Quincy, Ill. The emery wheel or stone used for sharpening is attached to a flexible shaft, enabling the grinding surface to be brought in contact with the knife at any desired angle, the latter being held by a clamp. The grinding wheel is revolved by foot power. Provision is also made for inserting boring, carving, or other tools in a socket at the end of the flexible shaft. This enables the same machine to be used for a variety of purposes.

## AGRICULTURAL INVENTIONS.

Mr. P. W. Williams, of Dardaville, Ark., has recently patented an improvement in cultivators for throwing up the soil and preparing beds for the planting of cotton or other crops planted in drills or rows.

An improved harrow tooth has been patented recently by Mr. I. H. Reiner, of Line Lexington, Pa. The tooth has a straight shank and a bent point, the latter extending about one-third of the tooth. Attachable heads are used to allow the reversing of the teeth in the frame, so as to change the angle of the teeth when desired.

An improvement in sulky plows has recently been patented by Mr. Jacob L. Runk, of Nashville, Ill. The axle is of the cranked pattern, and by a lever the furrow wheel is shifted up and the plow down. When the plow is to be let down into the ground, and when raised out of the ground, the lever is brought into action, which will depress the furrow wheel, also the landside, and at the same time raise the plow. The plow is at all times in a level condition transversely to the sulky.

Mr. Joseph V. Harter, of Denver, Ill., has patented an improved ground pulverizer and stalk cutter, which is composed of three cutters provided with spiral knives whose edges project vertically. Two of these cutters are axially in line with each other, but separated about the length of the third, which revolves in a frame jointed to the axle and projecting rearward. When the apparatus is drawn forward, the rotary cutters are revolved by contact with the ground, and the blades act to cut or chop the stalks, or in the same manner to pulverize the ground and level it as required. The cutters are in position to act upon different rows, so that three rows can be operated upon at once.

An improvement in sulky plows has been patented by Mr. Benjamin F. McRay, of Hamlin, Kas. The running gear of this plow is provided with a compensating device which prevents the plow from being affected materially by the running of the wheels over uneven ground, because the bar by which the draught is applied to the plow will shift in slots in the axles as the wheels rise and fall. By application of the power to the plow beam near to the plow standard, together with a gauge wheel at the rear, the plow will be carried wholly, or nearly so, by the wheels, thus preventing

most of the friction on the bottom of the furrow common to most plows.

Mr. L. C. Terry, of Columbus, Miss., has patented recently a cotton bale header for setting up compressed cotton bales on the end or side as desired, as they come from the press, to facilitate the loading of trucks. A platform is arranged in the floor like a trap door, and being connected with a lever located under the floor, and arranged in such relation to the lower platen of the press that when the press opens for the reception of a bale to be compressed the platen will depress the lever and cause the platform with the previously compressed bale on it to swing up, setting the bale on edge or end as the case may be, and thereby doing the work for which two men are now commonly employed.

Mr. W. F. Burditt, of St. John, N. B., has recently patented in the U. S. and Canada a very useful and ingenious trip mechanism for harvester rakes, whereby the operator can cause every second, third, fourth, fifth, or sixth rake to sweep off a gavel as the condition of the grain may require. The trip mechanism has a screw having sectional threads and connected with the rake head and its gear wheel, and engaging with a counting slide, having a blank section beneath its lowest tooth, so that the said slide will be raised by the screw, and then pushed back out of gear. The counting slide is so connected with the switch latch by a lever and link, that the backward movement of the counting slide will trip the latch, and by its forward movement will throw the counting slide again into gear with the before-mentioned screw. There are other ingenious mechanical contrivances brought into use by the inventor, which with those described above, render the new harvester rake an effective implement.

## MISCELLANEOUS INVENTIONS.

A very simple improvement in charcoal stoves has recently been patented by Mr. E. M. Stern, of New York city. The stove is especially intended for heating smoothing irons, shoemakers' irons, etc., but it is also well adapted for cooking purposes.

Mr. Charles Murdock, of New Rochelle, N. Y., has patented a new and improved portable fire escape, which may be quickly and easily put in position for use, which will afford safe and easy descent from the window of a burning building, and which will occupy small space when not in use.

Mr. H. A. Dearborn, of Austin, Minn., has recently patented an ironing table which combines also many other uses, for instance, a clothes horse, a cutting table, scrap bag, child's hammock, etc. It can be adjusted to any desired width and height, and can be folded very compactly when not in use.

Mr. Le Grand Terry, of Dundee, N. Y., has patented an improved rail and rail support for barn doors. The invention consists of a novel knee form rail support with an upwardly bent lip, and with angular braces or plates uniting their bottoms and backs, whereby a light but strong rail support is obtained sufficient to hold up the heaviest door.

Mr. G. A. Ramseyer, of Dobbs Ferry, N. Y., has recently obtained a patent on a piano stool, it being an improvement on his patented stool granted in 1877. The present invention renders the stool more stanch, and by its construction greater latitude for ornamentation is had, and the mechanism for elevating the stool is simplified, and vastly improved.

A convenient form of package for holding bolts and nuts has recently been patented by Mr. S. T. Hiker, of Portchester, N. Y. The invention consists of a box to receive the bolts, a tray to receive the nuts, fitted into the box, and a cover inclosing and protecting both box and tray. This mode of keeping the bolts separate from the nuts is very convenient.

An improvement in galvanic batteries has been recently patented by Mr. E. Frank Schlosser, of Hoboken, N. J. The invention consists principally in arranging the carbon plates and zincs in the battery in such manner that both sides of the carbon plates are utilized, thus obtaining greater working surface of carbon in the battery than heretofore.

A self-adjusting ventilator for carrying fresh air to any part of a building has been patented by Mr. D. B. Taylor, of St. Louis, Mo. It combines a receiving funnel with a vane attached, which turns with the wind, and directs the air into the room. Combined with this fan and vane are safety valves for relieving the apparatus of surplus pressure during a heavy wind.

Mr. John E. Evans, of Spanish Fork, Utah Ter., has patented a useful improvement in harness tug hooks, by which the tugs are secured to single trees and held in a secure manner. The hook has a spring tongue pivoted to it, by pressing which between the thumb and finger the hook is readily detached from the single tree.

A press clamp for button flies has been patented by Mr. Isidor Felber, of Nyack, N. Y. This press clamp has a stationary base block, to which are pivoted jointed swinging arms, having at their outer ends hand screws provided with swiveled feet, whereby shoe button lugs of various sizes can be conveniently and securely held while being scalloped.

Mr. C. C. Krebs, of Trempealeau, Wis., is the patentee of a milk skimming appliance which is placed within the milk can, the milk dripping off through a sieve, leaving the cream in a separate chamber within the can. It is claimed that the skimming of milk is not only facilitated, but a saving of cream is effected. The vessel is gauged, so that the quantity of cream will always be indicated.

Mr. J. B. Conlan, of Richburg, N. Y., has patented a device for taking up the slack of power transmitting belts while on their pulleys. The invention consists in a pair of strong stocks, each provided with fixed and adjustable corrugated clamping jaws for gripping the belt near its ends. The stocks are fitted with screws for drawing the ends of the belt together for joining after they are secured in the clamping jaws.

Mr. T. W. Byrnes, of Manitowoc, Wis., has patented a very complete apparatus for draughting garments. The contrivance is composed of forms with scales of measurements thereon for draughting coats,

linings for dress waists, etc. These scales are formed of several sections, hinged together, and the division marks are stamped or otherwise impressed on the edges of the scales.

A bench dog, which the inventor claims is better calculated for practical use and has greater durability than those now in use, has been patented by Mr. W. H. Stannard, of Lyme, Conn. The only fitting required in the construction of this bench dog consists of boring the rivet and screw holes and the hole in the arms for the stem of the push bit, fitting in the rivets and providing a spring.

A novel sled, to be propelled by the person riding, has recently been patented by Mr. D. R. Ivett, or Fort Fred Steele, Wyoming Ter. The rider occupies a seat on the sled and with his feet operates cranks, whereby bars which act as creepers are reciprocated. In moving forward, the bars slide over the snow or ice and then catch on the same, and propel the sled forward.

Col. Jean B. Amyot, Deputy Sheriff, of Quebec, Canada, has patented a preparation of asbestos and articles or goods made therefrom. The preparation consists in treating or preparing asbestos or goods or articles made of asbestos, and rendering them impervious to water by mixing or steeping the material or articles in a heated solution of isinglass, gelatine or glue, glycerine, and bichromate of potassium, with or without the addition of silicate of soda.

Mr. Adam Collignon, of Westwood, N. J., has patented improvements relating to folding chairs in which folding X-legs are combined with the pivoted back frame and side arms. The chair may be constructed in all its parts of straight pieces, thereby reducing the expense of manufacture without interfering with the appearance or comfort, and it is made sufficiently short, so that when folded it may be packed in a trunk.

Mr. Ferdinand Ephraim, of San Francisco, Cal., has recently received letters patent for improvements in rubber soles and heels for boots or shoes, the object of which is to devise a practical method of providing rubber soles and heels with metal wearing points or surfaces for increasing their durability. The invention consists in the employment of headed eyelets or rivets that are passed through the outer sole and heel and riveted before being attached to the boot or shoe.

Mr. J. A. Tracht, of Gallion, O., has patented recently improvements in hot bed and other frames for plants. The knock down frame has its ends adjustable to suit different widths of sashes. A double frame for better protecting the plants in the bed of the frame from frost is also provided when required, and the entire frame may be not only readily knocked down and put together again, but being adjustable admits of different widths of frame or number of sashes being used.

Mr. Ira B. Gage, of Dowagiac, Mich., has patented recently an improved attachment for self-binding harvesters, to receive the sheaves from the binder and retain them. The attachment is essentially a pair of arms projecting from under the table whereon the sheaves are bound, so as to receive and hold the sheaves crosswise on them as pushed out by the binding mechanism. Also means are provided for swinging one of the arms from under the sheaves to let them fall to the ground when the bunches are to be discharged.

Mr. B. H. Tripp, of Gallatin, Mo., has patented a device for taking up and hauling grain shocks, consisting of a pair of knife-blade shaped runners, and a crib or frame to each runner, pivoted at the rears of the runners to crossbars. The runners lie flatwise and with confronting edges, so as to open at the front ends in such manner that, being placed by the sides of the shock and the team started up, the hitching device will first swing the runners together and under the shock and the frame around it, removing the sheaves in a mass, so that they will not have to be handled individually.

An improvement relating to refrigerator cars has been patented by Mr. Chas. P. Jackson, of Chicago, Ill. The ice chamber is entirely overhead, and so constructed that broken ice and salt may be used, or full sized cakes of ice. A flue or opening extends all around the car, protected from the ice by a partition which extends to near the top of the car, that the warm air may ascend and come in contact with the surface of the ice. The ice rests on an open grating, or galvanized iron perforated with holes, the melting being from the under surface. Underneath this is a suspended ceiling, in sections, which supports the pans, so constructed as to be readily raised or lowered, thereby increasing or diminishing the opening for cold air and regulating the temperature of the car at will.

Mr. William L. Caldwell, of Chicago, Ill., has patented a combined calendar, blotting pad, paper cutter, and rule. The advantages of this implement are that it combines four distinct and useful implements for office use in one piece, thus increasing its convenience over the single parts composing it, and its saves much time in hunting up either of the pieces wanted, for they are always together. The body has a stiffener at its back edge, provided with an edge to serve as a paper cutter, and graduated as a measuring rule. A cover is hinged at the inner edge of the stiffener to the body like a book, and provided with an opening exposing a calendar card. An inner card covers the opening and holds the calendar card in place.

Mr. Jinter Hirayama, of Otamachi, Yokohama, Japan, has recently received a patent on a very ingenious and pretty invention which he calls daylight fireworks. Images of birds, animals, or any figure are made of very light material, and when projected into the air and attain a certain height they burst out, showing the design. A shell for use in sending the paper birds skyward is placed in a small cannon or other device for projecting it, with its contents, into the air. The explosion which sends the shell into the air ignites the fuse, and after the shell reaches a considerable height, the charge of powder is ignited. The explosion of this charge fires the paper images out of the shell, and they, being of light material and open at the bottom, become inflated with air, exhibiting the designs as they float gradually to the ground, presenting a fantastic appearance.