

## ENGINEERING INVENTIONS.

An improved car axle is the subject of a patent granted to Mr. Henry C. Atkinson, of Franklin, Ky., in which he provides a railway car axle having removable journals, so that when the journals become worn the axle may be repaired by placing new journals thereon.

Mr. Edward R. Brown, of Spartanburg, S. C., is the patentee of an improved car coupling. The upper part of the drawhead is provided with a hook projection, over which a U-shaped spring frame is passed for coupling the cars. This frame is held firmly in place by two hooks on the extremity of a lever which extends to the top of the car, between which jovers the crossbar of the frame is passed. The cars are uncoupled by raising this lever and thus elevating the frame which secures the two cars together.

A very simple automatic car coupling has been patented by Mr. T. B. Nutting, of Morristown, N. J. The drawhead is provided internally with a drawbar which has a hook on its forward end that engages with the connecting link for coupling the cars, the said drawbar being raised automatically by the entering link. A rod from the drawbar passes to the top of the car for uncoupling the same. This invention is intended as an improvement upon a patent granted to Messrs. Nutting & Graveline in December, 1877.

Mr. Cephas Shelburne, of Johnson City, Tenn., has obtained a patent for an improved gas engine in which gaseous pressure within the cylinder, resulting from the combustion of a mixture of inflammable gas and air, causes the piston to perform its stroke, the products of the combustion being expelled by the return stroke of the piston. The objects of the invention are to obtain greater speed and power in proportion to the size of the cylinder, and greater uniformity in its running; further, to simplify the construction of the engine, thus rendering it more practicable than other gas engines which have been introduced.

An improved car coupling has been patented by Mr. William E. Drew, of Richmond, Va. The drawhead has a V-shaped mouth to receive a clevis-shaped coupling link and a horizontal coupling pin held forward by a spring. With the coupling pin is connected the arm of a spring-drawn sliding rod, and with this sliding arm is connected the arm of a second spring-drawn sliding rod having projecting ends, by which the coupling pin can be pushed back to uncouple from the sides of the cars. Within a recess in the two part drawhead is pivoted a spring pressed arm to engage with the end of the coupling pin and hold it in an uncoupled position.

Mr. Levi H. Roberts, of Paris, Ill., is the patentee of an improved car axle and box, the object of which is to prevent the sudden stop of the cars in their sidewise or swaying movement, and to lessen the friction, in rounding curves; and to so construct the frame of the axle box that the parts of the box will remain in place when the bolts are entirely withdrawn; and to these ends the invention consists in providing elastic or yielding surfaces for taking the side thrusts of the axle, and in making the bottom and ends of the frame from one piece of metal with solid, bent, or welded corners. This invention is an improvement upon a patent granted to Mr. Roberts in December, 1882.

Among the recent improvements in car couplings is the invention of which Mr. Wheeler W. Fitch, of Honeye Falls, N. Y., is the patentee. The drawhead consists in two hollow castings secured together by suitable bolts, and having its throat cut away to receive the spear-headed connecting link, for coupling the cars. This connecting link is retained in the drawhead by means of jaws formed upon the shaft, which are journaled vertically in the casting. The shaft is provided with springs which hold the jaws face to face in the center of the casting, so that they will engage with the head and retain it securely. Devices are provided for turning the shaft and releasing the connecting link in uncoupling the cars. This car coupling is automatic in its action, very strong, and not likely to get out of order.

## MECHANICAL INVENTIONS.

An ingenious improvement in door locks has been patented by Mr. William Rowe, of Haverhill, Mass., the important feature consisting in the construction of the lock so that it can only be unlocked from the side of the door upon which it was locked, rendering it specially applicable for prisons and like institutions.

A novel machine for improving and mending roads has been patented by Mr. Lewis Lambert, of Hamorton, Pa. This machine is mounted upon wheels and is so constructed that the surface of the road will first be scratched by a series of teeth arranged in the forward part of the frame, after which the loose earth will be disposed by a scraper set at an angle, so as to give the desired shape to the road.

Mr. Auguste Lambert, of Fosse, Belgium, has obtained a patent for some important improvements in sewing machines. The invention just patented is an improvement upon a patent granted to the same inventor in August, 1882, and relates, among other things, to mechanism for driving the shuttle driver and for rotating the hooked ring, both being accomplished in a very satisfactory manner.

Mr. John Dempster, of Knoxville, Tenn., has recently obtained a patent on an improved millstone driver which is designed specially for that class of mills in which the spindle is made to stand vertically and support the runner stone. The object of the new invention is to provide better means for balancing the runner stone and rigidly securing it to the spindle, so that the flour may be granulated in a superior manner.

An automatic safety cock for gas burners has been patented by Mr. Andrew Archibald, of Yonkers, N. Y. The object of this invention is to provide a safety cock for gas burners which will automatically close when the light is extinguished, whether this be done by turning the cock or by blowing the light out, and which will be reliable and certain in its action, and will not interfere with the flow of gas while burning.

A cotton gin rib of improved device has been patented by Mr. W. S. Anderson, of Duncansby, Miss. This invention consists of the combination of re-enforcing wearing plates applied to the sides of the ribs, these plates being made tapering toward their lower ends, and flared inwardly with said ribs, which are recessed correspondingly to permit the holding of the plates in position without screws, and to permit their removal with facility.

Mr. George W. Foskett, of Winchendon, Mass., has patented a machine for turning round tenons for chair legs and similar articles, and the invention consists in the combination of rotary clutches for carrying the work to the cutters, revolving chucks carrying the tenoning cutters, and saws for cutting the legs or other articles to uniform length, together with mechanism for regulating the length of the tenon and for effecting the successive operations automatically.

Mr. Daniel Hansz, of Sullivan, Ind., has obtained a patent for an improved motor, which consists of a triple crank drivingshaft with foot treadle, hand lever, and seat lever attachments, whereby the power of the hands and feet and the weight of the body may be exerted on the driving shaft. The inventor claims that this power, while it may be employed for other purposes, is especially adapted for propelling wagons, hand cars, tricycles, boats, elevators, etc.

An improved boot or shoe sole stamp is the subject of a patent granted to Mr. William C. Hoar, of Spencer, Mass. This invention consists of a device for stamping the holes in the soles of boots and shoes in which the nails or pegs are to be driven for making figures in special design, and it is equally applicable for making the holes around the edges for the pegs, by which the soles are to be nailed to the upper of the shoe.

A novel invention for facilitating the manufacture of lead pencils has been patented by Mr. Paul E. Gonon, of New York city. This invention relates to the manufacture of that class of pencils which have a central marking core, incased by a wood fiber or analogous material pressed around the core in a plastic or semifiuid state. The great advantage of this process is that a superior article is produced at a considerably reduced price.

A very convenient and practicable camera stand, which presents many improvements over those at present in use, has been patented by Mr. W. R. Wright, of Princeton, Ind. This stand is supported by a tripod and has a central shaft, to the lower end of which is attached by a cord a balancing weight, by means of which the camera is raised and held at any desired height. The table, upon which the camera rests is so constructed that the instrument may be revolved or adjusted right and left, and may be set in any angle to the horizon.

An ingenious adding machine has been patented by Mr. Albert Stetner, Jr., of Berlin, Germany. The invention consists in an adding machine constructed with a spirally grooved cylinder carrying the numbers from 1 to 1,000, which cylinder is revolved more or less according as the series of key rods are depressed. The operator depresses the key which corresponds with the number he wishes to add, and after he has manipulated all the numbers he ascertains the result by looking through an opening left for that purpose at the top of the machine.

Mr. Andrew H. Ballagh, of Macon, Mo., is the patentee of an improved baling press. The material to be compressed is placed within the baling chamber through an opening in the top. The follower is then brought to bear against the material by means of a sweep, which is connected by links with the toggle bars of the follower. When the material has been compressed into a bale, separating boards are inserted and the operation continued as before, the baling chamber thus containing several pressed bales at the same time, the bands and ties being applied to the completed bale while the next bale is being compressed.

A new and improved station indicator has been patented by Mr. Henry Koehler, of Pomeroy, O. This improvement consists in a band having the names of the various stations indicated upon it. The band is arranged to wind over two rollers, one of which is provided with a crank by which the attendant rotates the band, and exposes to view the name of the station at which the train is stopping. A gong is sounded at the same time to call the attention of the passengers to the indicator. Separate edge strips may be provided on the same rollers for showing the distance the train has run from a given place, the time it was due, etc.

Mr. William H. Ernst, of Chase, Kan., has obtained a patent for an improved grain weighing apparatus which automatically weighs and registers the weight of grain. This apparatus consists of a couple of hoppers with falling bottoms and a shifting gate or valve, connected with one another in such a manner that the bottom of one hopper, falling to discharge its load, is made to raise and close the bottom of the other hopper, the valve by which the grain is conducted into the respective hoppers being shifted at the same time, while the registering apparatus is operated by the falling of the bottoms.

A very simple and practicable amalgamator for separating the free gold from auriferous earth, without the use of water, but which may be used with water if desired, has been patented by Mr. Henry Cook, of Leadville, Colo. This apparatus consists, essentially, of means for rolling and otherwise causing the earth or powdered ores to flow over amalgamating copper plates charged with quicksilver, in imitation of the action of water in the sluice machines, and causing the particles of gold to come in contact with the charged plates, together with an arrangement of quicksilver baths for separating particles too large to be taken up by the plates.

Mr. Charles Conner, of New York city, is the patentee of an improved wire wrapping or covering machine. The object of the invention is to provide a machine by which wire may be wound with one or more strips of rubber or similar material for insulating wire. The strip or ribbon first applied to the wire is fed off from a reel attached to the eye plate, and thence passes through suitable guides, which turn or roll up

the edges of the strip before it reaches the wire and eye, and the wire itself is drawn from a primary reel through the eye and sleeve by means of rubber rollers placed immediately in the rear of the sleeve, from which rollers it passes, completely covered, to the final winding drum or reel at the end of the machine.

An improved apparatus for soaping and dyeing textile fabrics, in which the material to be operated upon is passed over rollers, and is thus immersed in the soaping or dyeing liquid, has been patented by Messrs. John Gibson, Jr., of Mottram, County of Chester, and John Platt, of Manchester, County of Lancaster, England. The object of this invention, when applied to soaping, is to get rid of the thickening which has been used as a vehicle to carry the color or mordant when printing, thereby leaving the color only in the fabric. When applied to dyeing, the object is to cause the coloring matter in the liquid to thoroughly impregnate the fabric. This improved apparatus is claimed to effect this operation with greater facility than any hitherto employed.

## AGRICULTURAL INVENTIONS.

A combined harrow, seed planter, and cultivator, which recommends itself to farmers as saving them the expense of buying a separate machine for each operation in raising crops planted in rows, has been patented by Mr. Robert F. Ellis, of Whitt, Tex.

Mr. Francis A. Pettitt, of Valley Mills, Tex., has patented an improved cotton chopper and cultivator, which commends itself to the public for its simplicity. The machine can for the most part be made by hands of ordinary skill, such as are generally available whenever such machines are required for use. Mr. Pettitt is to be congratulated for producing a machine to supply such a long felt want.

A new hand corn planter, designed to expedite the operation of planting corn in the hill, has been patented by Mr. Samuel M. Macomber, of Grand Isle, Vt. This planter is provided with a seed box and with a sliding seed cut-off, by means of which the seed is admitted in the quantity required into a receiver below, from whence it is dropped into the ground. A plate projects a few inches above the lowest part of the planter for regulating the depth of thrust of the machine, so that all the kernels of seed may be deposited at equal depth in the soil. This hand seed dropper is an improvement on a similar machine patented in 1882.

A very simple device to be applied to a harvesting wagon for stacking straw has been patented by Mr. Christopher Leffingwell, of Clarksburg, O. The wagon is provided with a stacker made in two parts hinged together at their adjacent ends, so that when the stacker is to be brought into use it may be readily extended and placed in position, and there supported by chains and guy ropes. The stacker may be so made to extend to any desired length, and when not in use it is folded into small compass for transferring from one field to another, and for convenient housing after the harvesting season is over.

## MISCELLANEOUS INVENTIONS.

A composition to be used for kindling fires has been patented by Mr. William J. Babb, of Troy, N. Y. The mixture consists of charcoal, corn cobs, petroleum, tar, and some heavy hydrocarbon, such as linseed, cotton seed, or fish oil, mixed together in certain proportions.

Mr. Wilhelm Reissig, of Darmstadt, Germany, has patented an improved stamping ink which is made by adding to ordinary printer's ink iron oxide and oxidulated iron, metallic iron in the finest possible solution powder, all of which is intermingled with linseed oil, varnish, and lamp black.

Mr. Magnus Gross, of New York city, has patented a retort for making illuminating or fuel gas from crude oil, naphtha, or other liquid hydrocarbons and superheated steam, by the aid of which dissociation and readjustment of the constituents of any liquid hydrocarbons and steam can be accomplished simultaneously and in the nascent state.

A horse blanket has been patented by Mr. Edgar W. Allen, of Rock Island, Ill. The novelty and use consist of stays, instead of being attached in the ordinary way, extending along the side of the horse, and connect with one another at the neck and tail, so that the strain will be brought to bear upon the stays instead of upon the blanket.

A harness pad has been patented by Mr. Edward Kettering, of Jefferson City, Mo., which can be very quickly and cheaply made. The new pad is very neat in appearance, and is so constructed that the trimmings and skirt straps may be removed and new ones supplied without taking the pad apart, thus lessening the liability of injuring it.

An improved mode of attaching lumber wagon bodies to the bolster of the running gear has been patented by Mr. Palmer Stafford, of Green River, Ill. By a peculiarly constructed strap the inventor confines the body of his wagon to the bolster so firmly that the jar and rattle usual in this class of farm wagons is obviated.

A workman's dinner pail for carrying food and liquids in a compact and tidy manner is the subject of a patent recently granted to Messrs. F. McC. Starbuck and R. M. Taylor, of Ansted, W. Va. The pail is provided with a movable dish and with two semi-circular covers hinged on opposite sides of the pail. The covers are provided at their inner edges with projections for holding a cup when the covers are closed.

A simple and convenient bag fastener has been patented by Mr. C. W. Bradford, of Belfast, Me. A chain having a crossbar is attached to one end and a slitted curved plate at the other end, which chain is provided with a hook for holding it to the bag. The chain is passed around the gathered part of the bag and drawn up tight, and a link is passed into a slit of the plate fastening the bag.

An improved starch for stiffening and giving a superior gloss to washed articles without injuring their texture, has been patented by Mr. Julius Gunther, of Quincy, Ill. This starch consists in the combination in certain proportions of common starch, crystallized

sulphate of ammonia, and crystallized boracic acid, the whole forming a compound which not only presents the advantages above cited, but renders the objects on which it is used fireproof.

An underwaist for children is the subject of a patent granted to Mary E. Higgins, of Cadillac, Mich. This invention consists in a laced waist composed of two seamless half bodies and capable of adjustment down its back and front to vary its size, combined with the waist straps for supporting the hose and leggings of the wearer, all the parts being so adjusted that a child wearing the article has the greatest liberty of action, and without any strain on the body.

Mr. Joseph T. Dunham, of Brooklyn N. Y., has patented a combined tag and envelope, which is so constructed that the bill or invoice can be sent with the goods, which is a matter of great importance, especially if the goods are perishable, so that the merchant may know the cost to permit immediate sale. Furthermore, in this envelope the address is concealed, and dealers cannot ascertain the addresses of the customers of their competitors. The invention is particularly designed for express companies' use.

A very convenient shot holder for the use of retail dealers has been patented by Mr. James C. Turner, of Sterling, Kan. This improvement consists in a holder having a number of revolving receptacles, each compartment being designed to hold a different size of shot. These chambers are provided at the bottom with an opening through which the shot is discharged as desired. Each chamber is likewise provided with a glass side opening, by means of which the grade of shot contained therein may be ascertained.

An improved spring bed has been patented by Mr. George Wenzell, of Detroit, Mich. This improvement consists essentially of two frames connected by levers and springs, so that either frame may serve for the base, and will support the other, which has the bed on it, the spring or springs, together with the levers, preserving the level of the surface, while affording the required elasticity of the bed, whereby the bed will be depressed alike over all its surface if the weight is centered upon one part only.

Mr. Jacob O. Hopping, of Sagg, N. Y., is the patentee of an improved thill coupling, which is designed to prevent rattling of the rhills. The invention consists in a latch pivoted on one of the jaws of the axle clip, which latch prevents the bolt from passing out of the jaws and the thill eye. The latch is provided with a plate fitting over the head on the end of the bolt, and the inner end of the latch is provided with a curved shank fitting on the axle. This device is very simple and effective.

A very simple and inexpensive box opener has recently been invented, which greatly facilitates the operation of removing covers from boxes. This tool consists of two cross pivoted handles provided at their ends with two inwardly extending jaws wedge-shaped at the edges, and adapted for insertion under the cover of the box. By pulling the two handles away from one another, the two jaws will be brought together and the cover of the box pried up. The patentee is Mr. T. L. Stanwood, of Brunswick, Me.

Messrs. James G. Leslie, of Oregon, and W. A. Hall, of Pine Rock, Ill., have obtained a patent for an improved wagon box and hay rack. The box of the wagon is so constructed that when desired top sections are attached to the sides by means of outside and inside cleats, by which device the capacity of the box is greatly increased. The rack attachment consists of inclined arms which rest upon the upper edges of the sides, being stayed at the end and middle by jointed crossbars. The arrangement is simple and may be readily adjusted by a single person.

An improvement in pantaloons suspenders has been patented by Mr. Abraham Schenfield, assignee of Mr. Bernard Petchaft, of New York city. The suspender straps are of the usual form, and the improvements relate to the buckles and the end straps, the former being double buckles, in the upper portion of which the main suspender pieces, and is held at any desired length. The lower portion of the buckle is provided with a tongue which engages with the end straps, which are secured together by eyelets which hold them securely in place.

An improved coffee pot has been patented by Mr. Lewis W. Walker, of Minneapolis, Minn. The invention relates to the class of coffee pots in which an inner vessel for the coffee is arranged within an outer vessel with a water space between the vessels. The object of Mr. Walker's invention is to condense the steam formed in the water jacket between the vessels in the process of making the coffee, and allow it to flow back into the water jacket, whereby the quantity of water necessary to be used in the water reservoir is reduced, and its escape in the form of steam is prevented.

A grain drying and cooling shelf for manipulating the grain in drying kilns where artificial heat is employed for rapid expelling of the moisture has been patented by Mr. Henry Cuder, of North Wilbraham, Mass. This invention consists of a series of inclined shelves, so constructed that the grain may be spread out to be cooled over large areas of surface and returned again to the delivery spout by the action of gravity. The grain is moved slowly over the shelves, its direction being frequently changed and its motion being retarded by the shelves and by counter currents of air, so that the velocity of movement will be limited and the grain thoroughly cooled and dried.

Mr. August Hoen, of Baltimore, Md., has obtained a patent as a new article of manufacture on a hat lining, which consists in providing by any printing process an imitation of the more expensive kind of hat lining, where the central colored strip is made of heavy material for stamping the manufacturer's name upon it, and the side strips of lace or other gauzy material. Mr. Hoen has also obtained a patent for preparing a lithographic stone or plate for lithocautic engraving, consisting in stopping out or filling in with ink at regular intervals of space the lines drawn on an etching ground, thereby producing a series of dotted lines in place of those which were previously continuous. Clouds and other varied effects may be also successfully obtained by Mr. Hoen's newly patented process.