

ENGINEERING INVENTIONS.

Mr. Thomas Keely, of Memphis, Tenn., has obtained a patent for an improved privy sink which is so constructed that it may be readily cleaned, smothering the odors generally arising from privies, and as a sanitary improvement possesses many qualities which recommend it as a safeguard against disease.

A new link guide for car coupling has been patented by Mr. Frank Sweetland, of Edwardsburg, Mich. The link is guided into the drawhead without endangering the operator by the very simple appliance adopted by the inventor, and which is an improvement on a patent granted to Mr. Sweetland on August 15, 1882.

Mr. James Robson, of Birmingham, Eng., has obtained a patent for an improved gas engine. It consists in a cylinder furnished with a main piston and provided with a charging valve and igniting orifice, of a charging piston in the rear of the main piston, and of means for operating the charging piston. For use in pumping water, stamping, and similar processes slight changes are made in the arrangement of parts of the engine.

An improved car brake in which the momentum of the car is made use of to brake the same has been patented by Mr. Charles W. Smith, of Coalesburg, Mo. This brake is so connected with a pinion wheel located upon the brake lever that the brake will only act upon the wheels of the car when the pinion is set in motion. Upon the axle of the car is attached a cog wheel with which the pinion wheel meshes when the brake bar is set. The momentum of the car rotates the pinion and sets the brake.

A railroad switch of simple construction, which can be operated with much ease by the attendant, has been recently patented by Mr. Jacob Elmer, of Biloxi, Miss. The movable rails are confined to a metal plate, one edge of the outer portion of which is provided with teeth, with which a corresponding pinion wheel on the vertical shaft meshes. On the upper end of the shaft a wheel is affixed for the convenience of the switch tender, and which he turns to change the position of the movable rails when the train is to be switched off from the main track.

A new gas motor of improved construction, and believed to embody several important advantages over other engines of this class, has been patented by Mr. Herbert Sumner, of Manchester, England. In this engine the combustible gas and vapor and the air are drawn together into a chamber by an outstroke of the engine, and are there intermingled. They then pass through a valve operated by a cam motion, and are there compressed in the usual manner. After the gases have been ignited and have performed their office on the piston, they are emitted by an exhaust valve placed besides the inlet valve on the back cylinder. In this engine the ignition of the charge is rendered more sure and prompt than in those now in use.

It is very desirable to have a traction or road engine geared so that it can operate with great power and little speed, or can be run at a higher speed when comparatively little power is required. For example, in traveling in one direction the engine may be loaded, and when returning from its destination it may be unloaded. In the first instance it should be geared for power, and in the latter it may be geared for speed to economize time. Again, some parts of the road may be heavy and the rest good, and in such case an adaptation may be made of the gearing to suit these circumstances. Messrs. I. G. Rider, W. H. Snyder, and A. O. Frick, of Waynesborough, Pa., have recently patented an improvement in traction engines which consists in the combination, with the two driving wheels, of a compensating gear which derives motion from the driving machinery and transmits it independently to each of the two wheels, so that either or both of the wheels may be driven. A locking mechanism for holding rigid one of the wheels of the compensating gears which transmit motion to one of the traction wheels, and an adjustment by which that traction wheel may be released and allowed to run freely or independently of its driving mechanism, so that the value of a compensating gear is preserved for turning corners, and whereby attaining two speeds for the traction engine is possible with very little addition to the ordinary mechanism.

MECHANICAL INVENTIONS.

An ingenious machine for folding the edges of fabrics in making shirts, collars, cuffs, etc., has been patented by Mr. J. L. McMillan, of Cambridge, N. Y. This machine is simple in its construction and should prove a boon to the large shirt manufacturing establishments throughout the country.

A novel method of shaping and mortising balusters and other railings has been patented by Mr. W. J. Tait, of Jersey City, N. J. By this improvement the cost of making and fitting balusters will be greatly reduced and the balusters will be more securely held in place than by the methods heretofore employed.

Mr. J. J. Souder, of Washington, D. C., is the patentee of an improved grain scourer and polisher which is designed to scour the cuticle off, and to polish the surface of each kernel, and to take away all dust and dirt from the grain, leaving it thoroughly cleaned before entering the flouring mill.

Mr. Aaron T. Clark, of Dannemora, N. Y., is the patentee of a new hat sizing machine which is claimed to possess considerable merit over other machines for the same purpose. The inventor employs flexible rollers, which of themselves are not new for similar purposes, but he has added other appliances to the flexible roller, whereby he produces a close approximation to hand work.

An improved ring spinning frame has been patented by Mr. Michael E. Sullivan, of New Bedford, Mass. The object of the invention is to spin from the top of the spindle, so that the yarn will receive its twist in the bite of the rollers at the instant when the sliver is delivered, and thus avoid the use of guide wires, which hinder the twist from entering the bite of the rollers.

A very simple pneumatic clothes washer has been patented by Messrs. N. B. Elliott and J. T. Lloyd, of Holten, Mo. This machine is so constructed

that the air within the washer is compressed, and thus the clothes are cleaned by forcing the water against them. By this pneumatic process the clothes are not likely to be torn, and the wear upon them is not nearly so great as when scrubbed in the ordinary way.

A micrometer gauge of improved construction has been patented by Mr. George W. Church, of Roseville, N. J. The object of this invention is to provide a micrometer gauge in which the measuring bar may be forced against the object to be measured, always with a certain uniform pressure, thereby insuring accuracy of measurement without reference to the force applied.

Mr. Charles H. Parsons, of Shauck's, O., is the patentee of an improved elliptic spring. This invention consists of an improved construction of the end joints of elliptic springs. In this improvement the lower plate is made to hold caps to keep the plates together, and the upper one rests on the coil of the lower one, so as to relieve the joint bolt of wear, and so that the welding of flanges on one of the plates to support the pivot bolt is avoided, and the injury thereby caused to the metal prevented.

Mr. J. E. Dowson, of Westminster, London, England, has received a United States patent for an apparatus for the manufacture of gas. This invention relates to the manufacture and treatment of non-luminous heating gas made by passing steam and air, or steam only, through incandescent carbonaceous fuel. The improvements chiefly refer to apparatus for making such gas; but the inventor claims that some of them may be also useful for other purposes.

Messrs. Geo. E. Bauder and A. M. Pease, of Sanborn, Dak. Ter., are the patentees of an improved harness pad block, which consists in recesses formed to receive and shape the pad leather, and a series of movable pressing plates for filling the pads. An arched bar of semicircular shape with hooks at either end to attach to the rim of the pad forming block is provided. A hand screw extends through this bar, and is operated for compressing the leather similar to an ordinary letter copying press.

A rope clamp designed to facilitate splicing hempen or wire ropes without cutting or otherwise injuring the same, has been patented by Mr. Charles Littlefield, of Vinalhaven, Me. The invention consists of two clamp plates connected by links and pins, one of the pins passing through and working in an inclined slot formed upon the back of one of the jaws or plates, whereby the device may be applied to ropes of any kind or size and may be readily attached to or detached therefrom.

An improved station indicator has been patented by Mr. Charles O. Ball, of Lowell, Mass. The casing of the indicator is provided with an opening at the front covered by a glass plate, through which the names of the stations are displayed. The names are indicated upon a band which has its end secured in rollers, one located at the top of the casing, and the other at the bottom. By pulling a cord at the end of the car the rollers will be rotated and the name of the station brought to view.

An improved feeder for cotton gins is the subject of a patent granted to Mr. A. L. Stietenroth, of Natchez, Miss. This invention consists in so locating the feeding apron in relation with the mouth of the feed box that convenient access may be had to the gin for the suitable cleaning of the box and the grate. The danger of fire from neglect of this is thus lessened. Access to the feed box is attained by raising the feeding apron at one end out of the way, and slotted legs and nuts are provided for securing it in any position desired.

Some improvements have recently been made in the manufacture of starch, of which Mr. Louis P. Best, of Davenport, Iowa, is the patentee. The invention consists in steeping, grinding, or disintegrating the grain, passing it over separators while subjected to sprays of starch water, regrinding the coarser particles and passing the reground mass over separators while subjected to sprays of fresh water, whereby a more perfect extraction of the starch is produced and the refuse from the operation is prepared as an article of commerce.

An improved thread guide for spooling machines is the subject of a patent granted to Messrs. Robert Atherton and James Newby, of Paterson, N. J. The invention consists in a recessed block mounted to slide on the transverse bar of the machine, and adapted to receive a thread guide. The block is provided with spring rods for holding the guide in the recess in the block. The free ends of these spring rods rest in grooved tracks on the transverse bar, and are thus adapted to slide with the block for adjustment of the position of the thread guide.

An improved machine for making telegraph insulator pins has been patented by Mr. John B. Smith, of Sunapee, N. H. The blank is fed to a pair of revolving mandrels which seize and rotate the blank while a pair of movable cutter holders are alternately brought into range of engagement with the blank. After the screw thread is cut the mandrels separate, and a hammer knocks the finished pin loose and out of the way for the next blank. Mr. Smith has also obtained a patent for a machine for making brackets for telegraph insulators. This machine is provided with a device for feeding and holding the blank while it is being turned, and also two independently rotating mandrels having a reciprocating motion, and bearing funnel-shaped cutter heads which advance, so as to turn the two ends simultaneously to form two brackets.

Mr. Joseph W. Wilson, of Wyandotte, Kan., is the patentee of an improved middlings purifier which is claimed to be more effective in its operation than those in common use. The invention consists in arranging a system of chutes and valves between the bolt and suction chamber in such a way that the current of air from the blower may be directed upon any portion of the machine. The bolt or sieve is mounted upon the rollers of the reciprocating frame, to which power is applied from the shaft. In this way the middlings are moved from the head to the tail end of the sieve or bolt, on a perfect plane entirely free from the rising and falling motion common to other ma-

chines, whereby the middlings will be more perfectly cleaned from impurities than is possible by the rocking motion. The bolt is made higher in the middle than at the sides, for the more even distribution of the middlings over the sieve.

AGRICULTURAL INVENTIONS.

Mr. E. R. Ham, of New Market, Ga., has patented an improvement which relates to wheeled cultivators, in which a number of plowbeams are secured to the axle and arranged side by side, with flexible connections to adapt them for various movements independent of the axle and of each other.

An improved separator and cleaner for thrashing machines has been patented by Mr. W. C. Buchanan, of Belleville, Ill. On the front end of a vibrating pan is attached an imperforate sheet metal section on which the straw, chaff, and grain are received from the thrasher and passed along the pan, which is caused to swing backward and forward on hangers. This metal plate is provided with long fingers which are raised from the pan, so as to enable the wind from a blast to act upon the material and carry off the chaff and short straws. The invention provides further improvements which render the operation of cleaning the grain expeditious and satisfactory.

MISCELLANEOUS INVENTIONS.

Mr. W. J. Morrison, of Nashville, Tenn., is the patentee of a novel process for manufacturing lard by a mixture of cottonseed oil, beef tallow, or fat, whereby the inventor produces an article which he claims far superior to hog lard for culinary purposes.

An improved dynamo electric machine which has a uniform magnetic field, and thus does not require a commutator, the entire construction of the machine being thereby simplified, has been patented by Mr. A. Floyd DeLafield, of Noroton, Conn.

Mr. William R. Flynn, of Bordentown, N. J., is the patentee of an improved sewing machine cover which is so constructed that a backboard, which is located at the top of the box, and so as to slide in grooves, may be drawn out and the box forthwith converted into a chair.

A compound consisting of the following ingredients mixed in certain proportions, has been found very effective for tempering steel: saltpeter, yellow prussiate of potash, sal ammoniac, carbonate of iron, cimolia purpureus, common salt, and water. The patentee is Mr. J. T. Mercer, of Richmond, Ind.

Mr. Thomas A. Gause, of Moss Point, Miss., is the patentee of an improved umbrella holder. A forked clamp is secured to the seat, dashboard, or floor, so as to be turned in any direction to give the umbrella the proper angle of inclination to protect a person from the sun's rays.

A patent has been secured for a dental and surgical instrument by Mr. J. H. Doyle, of Hillsboro, O., which is used for depressing or elevating the lips or tongue in dental operations, and for the use of surgeons in the examination and treating of diseases of the mouth and throat.

Mr. Robert Nicol, Jr., of Oshkosh, Wis., has patented a safety pocket provided with a series of compartments for holding different articles, pencils, watches, money, toilet articles, etc., and so securing it to the garment that none of the articles can be abstracted from the pocket without attracting the attention of the wearer.

Mr. William H. Payne, of Western, N. Y., has patented a compound for removing rust spots or stains from fabrics or clothing, but more particularly from uncolored or light colored fabrics, by the use of oxalic acid, spirits of turpentine, and water, of such proportions, as to best accomplish the object.

Messrs. N. H. Darton and D. D. Williamson, of New York city, have patented a process for bleaching, defecating, and preserving sugar, sirups, molasses, cane, and beet root juices, etc., by treating the same with a solution of the tersulphite of alumina, and afterward decomposing said tersulphite by the use of carbonic acid gas.

An improved ice machine can is the subject of a patent granted to Mr. Henry F. Fordham, of Greenport, N. Y. The invention consists in an ice machine constructed with a raised and apertured bottom, by which arrangement it is claimed that the ice will form more rapidly, and that larger blocks can be solidified more thoroughly than the ordinary mode of freezing from the sides.

Mr. Frank Myers, of Aurora, Neb., has patented an improved end gate for box wagons. Two sections meet together at the center of the box and are hinged at their centers on the inside to a middle section. The latter has a staple projecting through notches in the other sections, and a key to hold them together, making a simple and efficient end board that may be readily released by simply detaching the key.

Mr. Phineas Topham, of Newark, N. J., is the patentee of an improved violin bridge in which it is claimed that the sound produced is much sweeter and more melodious than is the case with a bridge of the ordinary construction. This bridge is hollowed out and has a cavity formed in it, which is provided with a removable cover which may be adjusted for altering the size of the cavity, whereby the bridge may be readily converted into an open or closed sounding drum.

An improved stove top and cover, designed more especially for kerosene stoves, has been patented by Mr. W. H. Noyes, of Newburyport, Mass. The top of the stove is so constructed that it may be slid backward and forward, so that any particular boiler hole may be brought directly over or at any desired distance from the center of the heat, so that the cooking operation may be readily controlled. The position of the vessel on the stove cover may be changed, thus obviating the necessity of lifting it.

A tire heating furnace is the subject of a patent granted to Mr. Warner Lewis, of Stone Bluffs, Ind. This invention consists of an annular furnace

with a dome having draught regulating deflectors for controlling the heat, and all so arranged that the tires will be heated more evenly, rapidly, and economically than with a common open fire.

A combined wire and picket fence of improved construction has been patented by Messrs. M. Harrison Brown and Charles F. Hyde, of Ottawa, Kan. This invention consists in a fence which is composed of fixed posts, and horizontal and diagonal wires, and interwoven pickets carried by the longitudinal wires, and it provides a fence which is quite durable and very strong, considering the small amount of material employed in its construction.

A device for uniting or coupling the ends of telegraph wire fence or other wires has been patented by Mr. Charles Collins, of Chicago, Ill. The invention consists in a strip of metal having apertures in the ends and alternating notches in the side edges through which the wires to be coupled pass, the wire being held in place by pressure and friction. The great advantage of this invention is the ease and rapidity with which the wires can be coupled and uncoupled.

An improved wire netting, so constructed as to prevent persons or animals pressing against or climbing over the same, has been patented by Mr. William H. Johnson, of Manchester, England. This improvement consists in furnishing the netting with wires or bands having barbs at or near the middle of its meshes, the barbs being formed by severing or notching extra wires or bands which have been incorporated with the netting for that purpose.

An improved picker stick holder for looms is the subject of a patent granted to Mr. William J. Dunn, of Lewiston, Me. The invention consists of a picker stick holder composed of a hollow casting adapted to receive the picker stick, and having screws to hold and adjust the stick, whereby the stick may be shifted as it becomes worn, and a foot piece pivoted to said casting and adjusted in position by set screws passing through arms on the casting.

An improved rub iron for vehicles, consisting of a metal casting provided with a pivoted metallic roller and adapted to be attached to the side of the wagon under the box, has been patented by Messrs. C. C. Keen and F. G. Keen, of North McGregor, Iowa. A rubber so constructed is quite cheap and may be easily applied to the box and will fully protect the vehicle box, while at the same time it does not wear the tire of the wheel like the ordinary rubber.

Mr. Henry H. Schneider, of Port Clinton, O., is the patentee of a rocking attachment for chairs. Rocking levers are pivoted to the rockers and leg levers to the legs, and these are connected by vertical arms with the rocking levers, whereby if the person sitting on the chair presses down the foot board attached to the leg lever and then releases it alternately the chair will be rocked. In case the chair is not required to be used as a rocker it may be readily converted into a stationary easy chair.

An improved ice freezing apparatus is the subject of an invention for which a patent was recently granted to Mr. John Bowes, of Halifax, Nova Scotia, Canada. The invention consists of an apparatus for freezing water by natural cold, the water being fed into shallow pans for that purpose. Steam pipes are provided for thawing the frozen blocks free from the bottom and sides of the pans, after which the pans are tilted up and the blocks of ice are discharged into the ice house by gravity.

Mr. William Hadden, of Brooklyn, N. Y., has patented an improvement in the class of railway signals employing electricity as a motive agent and using movable banners for giving signals. The improvement consists in a divided banner, the two halves of which are attached to pendulous arms operated by electro magnets. The design of the invention is to reduce the motion of the armatures of the electro magnets, so as to admit of having them in the stronger portion of the magnetic field.

A practical ferrule for pipe joints to be used where pipe sections of soft metal are to be connected with iron pipes has been patented by Mr. John F. Sullivan, of Brooklyn, N. Y. This is accomplished by spinning the end of the ferrule, so as to form a smoothly rounded ring. The particles of metal in this form brace each other. The construction of the end is fortified by inclosing a previously formed ring of wire of a size just sufficient to fill the ring of metal, which is so spun as to inclose the wire. Thus equipped, the metal of the tube is further re-enforced and braced by the ring, which is thus reliably engaged with it.

An ingenious refrigerator, the object of which is to cool water, beer, and other articles with a comparatively small quantity of ice, has been patented by Mr. Thomas Keely, of Memphis, Tenn. The invention consists of a refrigerator provided with an inclined platform for receiving the ice, so that the ice will slide down as rapidly as it melts and rest against a water tank which is attached to the inner surface of the door and provided with a cock, whereby the water drawn from the tank will always be cool. The invention further consists of two slides, one provided with a partition and the other with a compartment for receiving the dishes and other vessels containing the articles to be cooled.

A curbstone sidewalk underground conduit for electric wires is the subject of a patent recently granted to Mr. Edward Clark, of Jersey City, N. J. An open-topped iron box is provided, rectangular in form, and with the outer side made sufficiently strong and heavy to adapt it to serve as a curb. The upper edges of the sides of the box are rabbeted, or have shoulders formed upon them to receive and support the cover, which is made in sections, so that any part of the said cover can be turned back or removed to give access to the interior of the box. If desired, the sections of the cover can be hinged at their inner edges for convenience in opening and closing any desired part of the box. In case the sidewalk stones are too thick to be readily cut away, the box is placed beneath the said stones, and doors are formed in the outer side of the box to give access to the interior. The telephone or telegraph wires are thoroughly insulated, and are mounted upon suitable supports within the box.