ENGINEERING INVENTIONS

A patent has recently been issued to Mr. J. B. Hunter, of Ashley, Ill., for an improved motor constructed with sprocket wheels, cog wheels, a driving chain, and two independent fly wheels, of which one is rotated directly from the shaft to which power the patentee of an improvement in harrows. The impleis applied, and the other is rotated from one of the ment is suspended from a truck frame which is mountaxles on which the wheels are mounted, whereby the power will be equalized and balanced in the motor.

An improved automatic car coupling has been patented by Messrs. Joseph Rigby and S. S. Mc-Hugh, of Ottawa. Kas. In this improved coupling the drawhead is provided with a very large mouth. and the link is held in position to tenter the opposite drawhead. The drawhead is provided with a hole passing through it longitudinally, a slotted sliding block being located in this, and actuated by a spring for pressing against the link as held by the pin, so that the link will be held out suitably for entering the drawhead of the other car. *****

MECHANICAL INVENTIONS.

A new and improved machine for fastening buttons to garments and other articles is the invention of Mr. Albert Hall, of Cypress Hill, N.Y. The invention is very simple in its construction, inexpensive to make, and can be operated by an unskilled person.

Mr. Squire Raymond, of East Venice, N. Y., has recently patented a simple weight power arranged for trausmitting rotary and reciprocating motion, and is intended more especially for operating small machinery, such as wood turning lathes, churns, fanning mills, pumps, etc.

Mr. Ephraim R. Kugler, of Kingwood, N. J., has patented an improved turning lathe, which is especially adapted for turning out telegraph pins and simple roller die for making auger and bit blanks, the brackets. Not only is the entire shaping of the head or bracket accomplished by this machine, but a screw thread of the desired depth and width is cut upon the head of the pin.

A simple and effective jack for use in laying flooring or applying sheathing boards has been recently patented by Mr. J. H. Williams, of East Craftsbury, Vt. The screw is elevated at such an angle as to and four wheeled spring carriages, and an improved bring the handle above the floor timbers or studding, joint connection of the shaft of a two wheeled vehicle so as to enable the operator to force together his floor boards with greater ease to himself than it has been possible to do heretofore.

robes has been patented by Mr. Ferdinand Hosch, of is to provide a stop which shall act automatically to Brooklyn. N. Y. The fur is brought in contact with | prevent a bar, rod, or rope from moving in but one dithe rotating brushes by heingcarried over two rotating rection, allowing it at same time to move freely in the feed rollers. and a hood is arranged over these rollers and brushes to carry away the dust and dirt up through a chimney connected with it. The dranght which a commercial with it. The straight has obtained a patcheter in the reduction of sil-serves to carry away the particles of dust is caused by the rotation of the brushes, and if this is not sufficient ver, lead, and other ores. With this construction of fan blowers may be employed.

patented an improved gate hanger. This invention results. consists of an improved device for gates which open by both sliding and swinging, and the improvement consists in a bracket for the roller on which the gate slides, reversible for right or left hand attachment. It 'hle or portable roof which may be quickly applied in has guide roller studs for supporting friction rollers to part or whole to the top of the car. This roof also afguide the sides of the gate bars, the bracket being a simple device contrived in such form that it may be moulded and cast without the use of cores

Messrs. R. Cartmell, of Middlebury, Vt., and Albert Ball, of Claremont, N. H., have recently patented improvements in machinery for grinding for picker sticks of looms, consisting of a jointed the wood in the manufacture of pulp. The improvement relates especially to the class of machines shown in the letters patent granted to Mr. Cartmell. in Mav. 1882, in which the cylindrical casing carrying the grunding cylinder or wheel is provided with radiating chutes or hoppers. The invention further consists in certain features of construction and arrangement for facilitating the setting up of the machine and its convenient operation.

patented a guide for rattan splitting machines, which strength is attained. Diagonal wires or braces connect belong to that class of splitting machine which employs a sectional guide, arranged with suitable springs in such around the upright wires intermediately of their length. manner that it will firmly clamp or grasp the rattan while being forced against the knife, and will always properly center the rattan with respect to the knife, whether the rattan be large or small. The invention further consists in adapting the guide so that both the lateral and vertical adjustment bring the guide orifice into exact alignment with the passage through the knife

Mr. G. W. Pittman, of Keokuk, Iowa, has penders worn as rapidly as at present. patented a wrench having a stock or handle recessed centrally to receive the shank of the movable jaw, and also at its end for the reception of grip devices for hold- of New Haven, Conn., have recently patented an oil technical course of study. The book is divided into ing the movable jaw. The device consists of a pivoted burner suitable for the use of any suitable volatile in-lever having a cam head to gripe one edge of the shank, flammable liquid, including naphtha, benzine, gasolene, iutended to furnish an analytical or rational basis for and acting by its free end upon an angle lever camphene, petroleum, and other like liquids, for procarrying ratchet teeth for engagement with servations | ducing light and heat, and in which the liquid, that may of the opposite edge of the shank. The invention be supplied under a head or pressure, is conveyed for includes, also, a system of movable grip blocks or bits volatilization and combustion through a block or blocks in either the fixed or movable jaw or both jaws of the of non-inflammable absorbent material and burned wrench, for hold upon round objects. These bits work upon the exposed surface. by rollers upon inclines tangent to the seats of the Mr. Benj. F. Perry, of West Andover, blocks in the jaws of the wrench, so that any slip of O., has obtained a patent for an improved fence. This the shank of the movable jaw from its lower cam and fence is of the style known as zigzag or worm fence, ratchet grip connections in the handle will be compenand the great advantage is that rails from old or sated for by the movement of the bit blocks. worn out fences may be used in the construction of ---the new fence and serve a very good purpose. The rails of the different sections are alternately placed one AGRICULTURAL INVENTIONS. above the other and are bound in place by wires, the ends of which are secured to posts in the ground. A An improved potato digger and picker has barbed wire is also proposed to be extended along the recently been patented by Mr. Squire Raymond, of top of the fence over the top rail.

A cultivator of unique pattern and designed to accomplish a great amount of work with the smallest amount of power is the subject of a patent recently granted to Mr. David Wise, of Cottondale, Tex.

Mr. W. P. Triggs, of East Portland, Ore., is ed on wheels, so as to be easily transferred from one field to another. By an ingenious arrangement of levers the harrow is raised from the ground at the will of the operator, and when it is wanted for use it is readily dropped to the ground, and the harrow commences its work.

MISCELLANEOUS INVENTIONS.

Mr. J. B. Freeman, of White Hart Lane, Tottenham, England, has patented an improved process of making white pigments from oxide of zinc and sulphate of lead. The process consists in first grinding the oxide of zinc and sulphate of lead together, and then grinding them with oil.

Messrs. Jesse Wasson and Richard T. Hitt. of La Porte City, Iowa, have patented an improved ma-chine for working butter. The object of the invention is to provide a machine or table which will greatly facilitate and expedite the operation of working butter during its preparation for market.

Mr. John D. Blakeman, of Smith's Grove, Ky., has obtained a patent for an improved trace detacher. This invention consists in a whiffletree hook which is adapted to be operated by the driver to detach the traces and thus separate the horse from the vehicle in case the former runs away.

Mr. C. O. Tinker, of Ashtabula, O., has recently received letters patent for improvements for a object of which is to improve and cheapen their manufacture, which this invention seems to accomplish in an effective manner.

A two wheeled vehicle has recently been patented by Mr. L. S. Clars, of Doylestown, Ohio. Theinvention consists of an improved contrivance for applying combined coiled wire and rubher springs to two to relieve the body from the motions of the hors

An improved stopper for wire rope, etc. An improved machine for cleaning fur Johnson, of Norfolk. Va. The object of this invention other.

Mr. Ezekiel Holman, of Sandy, Utab Ter., has obtained a patent for an improved construction of furnace coke and other high priced fuels may be dis-Mr. Charles Daniel, of Butler, Mo., has pensed with as ordinary coal can be used with good

> An improved roof for railroad cars has been patented by Mr. John Walter, of Nashville, Tenn. The object of the invention is to provide a readily detachafords greater security to the brakeman in running along the top of the car than the old construction of roof, and provides an efficient means for ventilating the car.

Mr. S. W. Sykes, of Passaic, N. J., has patented recently an improved sweep strap connection metal hanger having a rocking connection with the sweep strap, also in special means for uniting the strap with the pivot or cross bolt of the rocking connection, whereby the durability of both the hanger and the sweep strap is greatly increased.

has recently obtained a patent for a light, durable. and all the lines necessary are used, there is not that prostrong basket, made of wire, and designed for handling cotton and farm produce. The invention consists in Mr. David F. Pratt, of Gardner, Mass., has any arrangement of a series of wires, whereby great the top and bottom hoops, and are twisted or wrapped

> An improvement in suspenders has been patented by Mr. William B. Pratt. of Rahway, N. J. The buckle of the suspenders is provided with a cupshaped slotted plate, and the ends of the suspenders are provided with a T-shaped shank which serves to unite the ends of the suspender to the buckle. Thus it is seen that the ends may be readily detached from the buckle, and the clothing will not be torn nor the sus-

prevent its spreading, likewise in a shaft strap provided with a loop or hook that engages with the screw bolt and in means for holding the thill coupling spring back when it is required to detach or adjust the shafts on pole of a vehicle.

The Harvey W. Peace Company, of Brooklyn, N. Y.. by assignment from Mr. Alexander Sloan, of Newark, N. J., are the patentees of an improvement in cross cut saw handles. The saw nandle is provided with a countersunk socket having exterior ribs to prevent it from turning, an interior screw thread to receive the split screw, which is made in two parts, having a hook upon the lower end of one part to pass through a hole in the saw plate, and a recess in the end of the other part to receive the hook of the first part. The connection between the saw plate and handle is provided with a washer placed upon the split screw, between the handle and saw plate, and grooved to receive the edge of the said saw plate. By this invention the plates of cross cut saws are securely held by the handle and may be readily detached therefrom.

An improved incandescent electric lamp is the subject of a patent recently granted in the United States to Mr. Desmoud Gerald Fitzgerald, of Brixton. County of Surrey, England. The invention has for its object to produce a more complete vacuum in electric incandescent lamps by effecting the removal of residual oxygen, and, in some cases, residual nitrogen. To this end is employed a supplementary carbon filament, or a wire which may itself be made of oxidizable metalsuch as iron or zinc-or be covered with an oxidizable metal-such as magnesium or other suitable substance placed within the bulb-and capable of being tempo rarily thrown into circuit, so that hy the passage of the current, after more or less complete exhaustion by the pump, the carbon filament or oxidizable wire will be heated, and thereby effect the absorption of the residual oxygen, and when magnesium is employed the residual nitrogen contained in the bulb.

Mr. Edward K. Warren, of Three Oaks, Mich., has patented a new stiffening material for corsets, ladies' dresses, and like purposes. The invention has for its object the utilization as a rib or suffener for corsets and other articles of dress or fabrics of the stalks, stems, or quill portions of feathers after they have been stripped-as for instance, the feathers of turkeys, geese, chickens, and other fowls-which kind of stock have heretofore had little commercial value. The growing scarcity and increased cost of whalebone for the above and other purposes has led to the employment of various substitutes, including bones, horn, rubber, steel, and rattan, but the use of split quills of fowla is believed by the patentee to be the best substitute for whalebone that has been devised for the above named purposes, and for some kinds of surgical appliances. The same inventor has obtained a patent for making whips out of whole or split quills made up in similar manuer to the material described for stiffening corsets, etc. The splints are arranged to overlap and break joints, and when bound together form a tapering elastic rod which may be covered in the ordinary way

NEW BOOKS ANL PUBLICATIONS.

MECHANICAL DRAWING SELF-TAUGHT. By Joshua Rose, M. E. Illustrated by 330 engravings. Henry Carey Baird & Com-pany, 810 Walnut Street, Philadelphia. Price \$4.00.

The aim of the book is to enable the beginner to learn to make simple mechanical drawings without the aid of an instructor. The two first chapters are devoted to descriptions of and instructions in the use of instruments. The remainder of the book is taken up with explanations of simple geometrical terms, showing their practical application, shadow lines, and line shading, and examples in drawing bolts, nuts, screws, gear wheels, engine work, plotting mechanical motions, drawing for line shaded engravings, shading, and col-Mr. W. J. Moore, of Weatherford, Texas, oring. The illustrations are well executed, and although fusion sometimes seen in works of this character, and which confuses instead of instructs the student. The matter is systematically arranged, that part which teaches the principles preceding and imperceptibly leading up to that part showing their practical application.

> THE ELASTICITY AND RESISTANCE OF THE MATERIALS OF ENGINEERING. By Wm. H. Burr. William Howard Hart Pro-fessor of Rational and Technical Mecha-nics at Baussalasr Polytachnic Instituta nics at Reusselaer Polytechnic Institute. John Wiley & Sons, New York.

The author states in his preface that the work is the outgrowth of lectures to students on the elasticity and resistance of materials, elaborated and extended so as Messrs. R. H. Dimock and J. A. Robinson, to cover many details not included in the ordinary the second, or practical development. Part I. considers the general theory of elasticity in amorphous solid bodies, thick, hollow cylinders, and spheres and torsion, the energy of elasticity, and the theory of flexture. Part II, in which the mathematical results obtained in Part I. are subjected to the test of experiment, discusses tension, compression, compression of long columns, shearing and torsion, hending or flexure connections, working stresses and safety factors, the fatigue of metals, the flow of solids, and miscellaneous problems. The plan of the book is admirable, as by the aid of experimental results in a great variety of material, coefficients are established which involve the varied and complicated circumstances of material in actual use, and formulæ, which otherwise express ideal conditions only, are thus rendered of the greatest practical value. The experimental results given arevery numerous, the author aiming toshow variations in products of different mills, and also of the same mill; to show the variations due to diferepce in size, shape, relative dimensions, and condition of specimens; and to show that specimens apparently identically the same may give different results. The

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Mr. C. L. Dalton, of West Elkton, O., has patented a novel thill coupling spring having an artachraises the potatoes and the soil in which they are em. ed latch with a removable and specially constructed bedded, and the shaker separates the potatoes from the joint pin, by which the pole or shaft is united with the coupling, and with which the latch engages; also, in a direction in which further investigations may be most coupling jaw provided with a tightening screw bolt to profitably pursued is indicated.

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Fire Brick. Tile, and Clay Retorts, all shapes. Borgner CO'Brien. M'f'rs, 23d St., above Race, Phila., Pa.

Peck's Patent Drop Press. See adv. page 269.

'Bradley's Road Card, Syracuse, N.Y. See p. 270. Diamond Saws. J. Dickinson, 64 Nassau St., N. Y.