

## RECENTLY PATENTED INVENTIONS.

## Engineering.

**FURNACE.**—Eulio De Strens, Rome, Italy. Two fire or combustion chambers are provided in this furnace, one above the other, the design being to obtain a high temperature from solid fuel of any kind, especially that containing a large proportion of slag. The upper fire chamber has a front opening for the feed, and ordinarily left open to admit air, and has grate bars of refractory material, downwardly converging openings from which lead to the lower fire chamber. The latter has an ordinary grate extending rearward at a sharp incline, and in a space front of the bridge wall below the lower end of the grate is an opening leading to the ash pit, adapted for the flowing away of fused slag. The draught is downward through the upper fire chamber, and through the lower one to the mixing chamber front of the bridge wall, the ignited and partially burned fuel falling and its combustion being completed in the lower chamber.

**BOILER CLEANER.**—John L. and William E. Alexander, Hazlerigg, Ind. This invention consists of a pipe adapted to slide into and along the bottom of a boiler, entering through a blow-off valve, and disturbing in its course the impurities in the bottom of the boiler, which are drawn into and blown out of the pipe. From the outlet of the blow-off valve extends a short pipe carrying a stuffing box, through which slides the pipe of the cleaning device, having at its outer end a valve, and clipped to the short pipe is a frame carrying a drum rotated by a crank arm, a rope on the drum being connected with the sliding pipe for moving it in and out. The device is readily fixed in its place for the work designed, and removed after this is effected until it is again wanted.

## Railway Appliances.

**RAILWAY COACH.**—Jesse P. Tillson, Union City, Ind. This coach has a series of doors in its sides, in pairs, hinged at their adjacent edges to open outward back to back, there being a latch for each door operative from within and without the car, with a series of vertically sliding bolts on the inner sides of the doors and a sliding bar having depending arms engaging the upper ends of the bolts, preventing the doors from swinging outward until the bar is retracted or the bolts pressed down. A door is to be located in the side of the car opposite each seat, means being provided for simultaneously locking or unlocking all the doors, and whereby also any door may be unlocked without disturbing the others. This construction provides ample exit in case of accident or fire, and such cars may be used for street railways as well as general railway service, each door preferably having a drop window.

**CAR COUPLING.**—Gabriel Rohrbach, Del Rio, Texas. This coupling is adapted for connection with one of the ordinary type with a link and pin, and is also designed to afford means to automatically connect cars and disconnect them from the roof or side of a car. The drawhead is spring-supported, and has its lower wall recessed to receive a pivoted jaw plate having depending flanges, so that its inner edge will be held raised by gravity, there being a device movable from the top or side of the car to rock the jaw. The drawbar is slotted and has a hook shoulder at each end, on its bottom surface and on each side, and is designed to interlock with the free inner edge of the pivoted jaw, or an ordinary coupling pin may be passed through the slot.

## Mechanical Appliances.

**CIRCULAR KNITTING MACHINE.**—Max Gernsny, Brooklyn, N. Y. This invention affords an improved construction whereby part of the tubular fabric is formed with a figured design according to a predetermined pattern, while the rest of the fabric is knitted in the usual manner in plain ribs with Cardigan or other stitch. According to the invention the cylinder or plate, or both, are formed in sections, one of which is shifted to change the relative position of part of the cylinder and plate needles, there being pattern wheels governing the movement of the movable section to reproduce on the fabric the pattern represented by the pattern wheel.

**TRESTLE.**—Thomas J. Peck, Ballston Spa, N. Y. This is an adjustable trestle or horse for the use of carpenters, masons, and others, to support work or scaffolds at any desired height between two and four feet without the use of blocking. Its main portion is formed of a bar of channel iron, to opposite ends of which are attached castings with sockets into which are screwed pipe lugs and a central sleeve through which slides a standard projecting into a cross beam. The sleeves are cut away to receive friction grips, consisting of an eccentric on a pivoted lever, whereby the movable parts of the trestle are readily clamped in fixed position, or released for adjustment to any desired height.

## Agricultural.

**CULTIVATOR.**—Bosil F. Coulomb, Clifton, Ill. This cultivator is capable of use either as a walking or riding implement. It has swinging frames in which are pivoted shanks adapted to receive various styles of cultivator blades, shovels or teeth, the frames being so constructed and hung, and the shanks so located, that the frames may be carried forward or outward in a horizontal line without lifting the blades or shovels from the ground, or pressing them farther in. Any desired degree of inclination may be given to the harrow or cultivator teeth, or to the shovels and cultivator blades, according to the character of the ground and the plants to be cultivated, the frames being carried toward or away from one another to cultivate wide or narrow rows.

**PLANTER AND FERTILIZER DISTRIBUTER.**—Andrew M. Hanna and Lewis J. Walker, Koscusko, Miss. This is a combination implement of simple, strong, and inexpensive construction, adapted for attachment to an ordinary plow beam. It is provided with a slide valve capable of being positively and

safely locked to permit more or less of the fertilizing material to be fed from the hopper, and its construction is such that one kind of seed may be planted and fertilizer distributed at the same time with the seed, or two kinds of seed may be planted, being dropped alternately, and fertilizer supplied at the same time.

## Miscellaneous.

**PROJECTILE.**—Abraham Martin, Birmingham, England. This is an explosive projectile or shell, in the base of which is a screwed socket for the fuse of sufficient length to prevent the blowing out of the fuse and the consequent failure of the shell to burst under the force of the explosion. A ring or bush is first screwed into the base of the shell, the rear end of which is then closed or contracted behind the ring by means of dies, the closed-in base of the shell and the ring or bush together, or the bush alone, as the case may be, affording the necessary length of socket for the fuse.

**PNEUMATIC GRAIN CONVEYER.**—Frederic E. Duckham, Millwall Docks, London, England. This invention relates to the means whereby the admission of air in sufficient quantity to the mouth of the suction pipe is insured, so that the individual grains will be suspended or caused to float in the current and thus obviate choking of the suction pipe. For this purpose the nozzle is surrounded by a sleeve inclosing an air passage opening above the level of the grain in which the nozzle is inserted, the sleeve not extending entirely to the mouth of the nozzle, whereby air will be drawn through the sleeve to enter the nozzle with the grain.

**FENCE WIRE REEL.**—Mendal F. Reagan, Salisbury, Mo. A simple and durable construction is provided by this invention for conveniently and rapidly winding up or reeling barbed or other wire that has been used on and taken from fences, posts, or other places. It consists of a light two-wheeled vehicle, from which one of the wheels may be readily removed to place and secure a spool on the axle, the spool when filled being as readily replaced by another spool. The vehicle is ordinarily pushed forward to wind the wire, the operator at the same time turning a crank arm near the end of the frame to operate a sprocket chain and sprocket wheel on the axle, or the vehicle may be a standstill, and the wire wound by operating the crank arm.

**HOOD FOR FIREPLACES.**—John S. Wallace, Nelsonville, Ohio. This hood is pivoted above the fireplace, and consists of a semicircular or semirectangular cover to which is pivoted a series of flexible strips adapted to close one upon the other, the strips having recesses and stops to limit their movement. The improvement forms a simple adjustable device which may be attached to any kind of a fireplace and folded up so as to leave the fireplace entirely exposed or let down to partially inclose it, preventing ashes and dust from scattering about when the fire is shaken, and also increasing the draught.

**BROMINE COMPOUND.**—Frank H. Fishedick and Charles E. Koechling, New York City. This compound is designed as a medicine for the cure of nervous excitement, insomnia, headache and neuralgia, and for use in fevers. It is a new composition of matter derived from a combination of certain proportions of aniline, alcohol, and bromine, the solution and crystallization being effected after a specified manner, and the product being designated as bromanid. The crystals are of needle shape, small, white, brilliant, and nearly tasteless, while having a faint aromatic odor.

**ALKALINE CARBONATE AND CHLORINE.**—Farnham M. Lyte, 60 Finborough Road, London, England. This invention relates to a conjoint process of continuously producing alkaline carbonates and chlorine and their derivatives. The process consists in decomposing sodic or potassic nitrate by heating it with calcic carbonate, lixiviating out the sodic carbonate and converting the nitrous fumes evolved into aqueous nitric acid by the action of air or oxygen and water, dissolving plumbic oxide in the nitric acid, precipitating plumbic chloride by means of sodic or potassic chloride, fusing the plumbic chloride, and decomposing it electrolytically to form chlorine and metallic lead for use over again.

**LAMP WICK RAISER.**—Martin A. McBride, Woodville, Texas. The wick-operating wheel of this device consists of a cylinder formed with a series of coarsely pitched helically arranged ribs triangular in cross section, the ribs being so pitched that they extend from end to end of the cylinder without making a complete revolution. This wheel is secured on a shaft mounted to turn in bearings in the cap of the burner, the cap supporting in the usual manner the tube through which the wick passes. The device is designed to be of simple and durable construction, effectively facilitating the moving of the wick in the tube without cutting or tearing the wick.

**INNER SOLE.**—Augustine F. Littlefield, Lynn, Mass. This is a patent for an improved article of manufacture, in which a filling of leather, rubber, or other suitable material is glued, stitched, or otherwise fastened in the channel of the inner sole, a veneer being secured to its top surface and doubled over the edge to cover the channel. The object of the improvement is to produce an inner sole which will be light and flexible, but which will have sufficient strength, while it may be made of lighter stock than the inner soles in ordinary use.

**GLOVE.**—Isaac W. Lamb, Colon, Mich. This is a knitted glove composed of a main blank having finger pieces narrowed at the bases, the blank being narrowed at the point where the thumb is attached and having its upper portion of uniform width, while the thumb blank is secured to the main blank at the point of narrowing. The object of the invention is to produce a perfect fitting glove of good quality, which will look nicely when off the hand as well as when on.

**CHECK BOOK.**—Edward North, Newhall, Cal. In this book the stubs of each succeeding check vary in shape, dimensions, or position, so that as the checks are drawn and detached, the amounts of all

the checks drawn will be plainly visible in column order, one below the other, thus affording great convenience for adding and footing them. A special stub is also provided for bringing forward check footings, and a leaf is inserted for entering deposits and showing balances.

**BOX PULL.**—William J. Evans and William H. Kunert, Minneapolis, Minn. This is a simple and inexpensive device adapted for ready attachment to any form of fragile box, especially paper boxes, as it has a large bearing surface on the box, whereby the strain will be so distributed that the box may be readily moved without injury. The pull is made with a back plate having ears adapted to project through the side of a box, while a front plate has end slots to receive the ears and diagonal slots for the insertion of a label, a removable handle being secured in the ears.

**LABEL AND TWINE CABINET.**—Thomas M. Haynes and William H. Gunning, Palestine, Texas. The cabinet provided by this invention is designed to facilitate the speedy and correct selection of any desired label, and is arranged for the storage of quantities of various styles of labels in a distinctive manner in a neat, compact, and ornamental device. The casing has a partly open front and a drawer below, while the casing is a rotating many-sided label-holding cylinder, glazed doors being hinged to bars on its periphery and springs holding the doors normally closed. There are finger springs for each door, holding the labels so they may be seen.

**MUSICAL INSTRUMENT ATTACHMENT.**—George W. Van Dusen, Norwood, N. Y. This invention provides a tremolo attachment for string instruments, consisting of a tremolo block adapted to press the free end of one of the levers of the set of levers connected with the unison strings, so that when the hammer strikes these strings, the one connected with the lever pressed on by the tremolo block produces a higher sound, which sound mingling with the rest produces a tremolo sound of the unison string. The device is designed to be very simple and effective, and completely under the control of the performer.

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10. Perspective view of the residence of Mr. H. P. Rugg, St. Paul. Mr. A. H. Stern, architect, St. Paul.
11. Perspective and ground plan for a memorial church.
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