RECENTLY PATENTED INVENTIONS.

Engineering.

A PERFORATED BOILER DOOR.—Jean Hartmann, Mulhouse, Germany. This invention, which has been likewise patented in many foreign countries, is for a door designed to facilitate the sweeping away, without any diminution of the intensity of the fire, of any soot or dust deposited by the gases on the walls or tubes of boilers, or in other tubular or partitioned heating apparatus. The door is made with a number of perforations corresponding to the situation of the several tubes or spaces between the tubes, and pivoted plates are made to cover one or more of the perforations, which may be conveniently uncovered, one by one, as desired, for the insertion of a brush or other cleaning instrument.

Railway Appliances.

CAR DRAW FRAME.—John Shaw, Woodburn, Oregon. This is an improvement on a former invention of the same inventor, devised to facilitate the removal of any desired part of the frame for repairs or other purposes. The draught mechanism comprises upper and lower tubes or rods engaging at their outer ends the drawheads, each abutting with its rear face on fixed shoulders on the tubes or rods, and being held in place by collars and nuts. Ties connect the tubes or rods at or near the middle, and between the ties is a block of wood with recessed corners forming seats for the tubes or rods, the ties being held in place by clamping bolts, there being also spring casings which form seats for the tubes or rods.

Electrical.

TELEPHONE TRANSMITTER. — Horace C. Alexander, Bonham, Texas. This improvement is designed to facilitate the transmission of the greatest volume of sound without causing rattling or grating, and to that end a spring-supported flaring conical cell is provided with a flange covered with soft material which rests on the carbon button carried by the diaphragm, the carbon cell being filled with granulated carbon resting in contact with the carbon button. When sounds are uttered in the mouthpiece the vibration of the diaphragm causes a jarring of the granulated carbon, thus varying the conductivity of the cell, and producing the differences of current necessary for the transmission of speech.

SAFETY ATTACHMENT FOR LOCKS.—Adrien J. Moulart, Paris, France. Simple means for giving a signal every time the lock is opened are provided by this inventor. Two conducting half sleeves are arranged out of contact with each other in the lock, and a split keyhole sleeve surrounds them, there being an insulating sleeve between the keyhole sleeve and the half sleeves, while in circuit with the latter is an electrically operated signal device, such as an electric bell. When a key or picklock is inserted in the keyhole, the circuit is closed by the bridging of the space between the half sleeves, and the signal is sounded. It is also impossible to break the lock without sounding the signal.

BURGLAR ALARM CIRCUIT CLOSER.—Charles H. Dowden, Newark, N. J. In devices adapted for use in connection with windows, to close the electric circuit and send an alarm when either sash is moved, this invention provides for two side plates between which is a recessed insulating block, spring contact blocks being pivoted in apertures in the side plates, and completing a circuit between the plates when either contact block is pressed inwardly. The device fits easily in a recess in one of the parting strips that separates the sash, and instantly closes the normally open circuit when either sash is moved, thus sounding an alarm.

Mining, Etc.

PRIMER FOR BLASTING FUSES.—James H. Hart, Meaderville, Mont. This invention provides an igniter especially adapted for use in wet mines, consisting of a sleeve capable of embracing the end of the fuse, a cap or primer in one end of the sleeve being capable of lying adjacent to the end of the fuse, while a head strengthens the sleeve on its outer side around that portion which receives the cap. The device may be made separately from the fuse and applied when desired, or each fuse may be supplied with one of the igniting devices. The explosion of the cap will not cause the rupture of the sleeve, and the head permits holding the igniter firmly while the cap or primer is being fired.

ROASTING FURNACE.—James L. Wells, Leadville, Col. To utilize most effectively the available heat from the burning ore, and insure a complete roasting at a comparatively low cost, this inventor has devised a furnace which has a shaft with zigzag flues through which falls the ore to be wasted, a hot air chamber connected with the lower ends of the flues passing hot air upward through the downwardly moving ore. A hearth receives the ore, and an air chamber is divided from the hearth by a perforated bed plate, while a fume chamber is separated from the hearth by a perforated top plate.

Mechanical.

BIT GAGE.—Edmund Van Cauwenberg, New York City. This is a device for regulating the depth of bore of a bit, and is secured directly to the bit instead of to the brace, thus obviating the necessity of removing the chuck, and saving time. The gage is quickly and easily adjustable, and consists of an exteriorly threaded sleeve to surround the shank portion of the bit, and be clamped thereon by segmental clamping blocks, while an interiorly threaded gage sleeve engages the screw thread of the first sleeve. After adjusting the gage sleeve a set nut is turned down to prevent its backward rotation.

PUMP VALVE.—George Parker, Whiting, Ind. This invention consists principally of a valve disk with a hub fitted to slide on a fixed valve stem, a casing extending from the head of the stem and one end of the hub being in the open end of the casing, there being a spring coiled on the stem within the casing, between the head and the hub. The valve disk is held to its place by the force of the spring, and the latter is completely inclosed, so that in case of breakage its pieces will be confined and not liable to injure the working parts of the machine. The space over the valve stem and under the head also forms an air chamber or cushion pocket, giving easy movement and assisting in the quick closing of the valve.

SHUTTLE THREADER.—Rémi Brodeur, Fall River, Mass. This device comprises a blow tube, a suction tube and means for forcing air through the blow tube and at the same time causing a suction through the suction tube, the blowing and suction operating jointly to thread the shuttle. The device is designed to supersede the custom of threading shuttles by drawing in the breath, and by means of this improvement the thread at the end of a bobbin within a shuttle may be quickly drawn through the eye of the shuttle, whether it be extended through the right or left hand side of the shuttle.

Agricultural.

PLANTER.—Jesse W. Stancil, Farmerville, La. This is a planter which may be interchangeably employed to plant cotton or pea seed, or other similar seed, and to distribute fertilizer. Its wheel-supported frame has sliding ways at the rear, over which is a hopper, a board sliding in the guideways forming the bottom of the hopper, the board being provided with drop slides, and there being in the hopper a seed-distributing device operated from the driving wheels. The planter may be attached to any form of plow, and the furrow, after being opened, is rendered more or less even or compact to receive the seed, which is covered by a drag after having been deposited in the furrow.

SPRAYING APPARATUS.—James C. Ollard, Tacoma, Washington. This is a machine to be drawn by horses for effectively spraying fruit trees, vines, etc., with water for insecticide solutions. It has a large liquid tank, at each side of which are discharge pipes connected with swiveled spraying pipes, and above the liquid tank is an air tank to be filled with air under pressure by an air pump which is operated by the travel of the machine, the pressure thus stored up being employed for spraying the liquid from its reservoir while the machine is at rest as well as when it is in motion.

STALK CUTTER. — John Carrey, De Soto, Mo. This is a machine designed to evenly feed the stalks to knives which are arranged to shred them, leaving them in better condition for food and permitting the dust to be more readily removed. The machine has a shredding cylinder whose heads are connected by rods and in which the knives are arranged in series, each knife having the support of two rods, and the ends of the knives being carried beyond the periphery of the cylinder. A suction fan draws all dirt from the shredded material as it passes to the exit chute at the bottom of the machine.

Miscellaneous.

MACHINE GUN.—Harry C. Webb, Tacoma, Washington. This invention relates to rapid firing magazine guns, and is for a series of guns arranged in pairs and means for alternately loading and firing them. The gun has a central fixed barrel, and a series of barrels at each side adapted to swing in a horizontal plane, there being a pair of magazines for each barrel, a rotary loading device in each magazine, and intermeshing gear wheels for rotating all of the loading devices, the breech doors being simultaneously opened and closed. The muzzles of the several guns may be readily swung inward or toward the central gun, when it is desired to concentrate the fire, or swung outward to cause the shots to diverge, and the several guns are simultaneously discharged as the several sears are simultaneously operated.

MONEY CHANGER.—George T. Farnell, Bayborough, N. C. This is a simple and easily operated mechanism by which to deposit in a suitable receiver the different coins to aggregate the sum of change desired in any transaction. A casing is provided in which are holders for coins of each denomination, and by means of independently operated slides and detents, the apparatus is arranged to simultaneously discharge from several of the holders as many as desired of the coins contained therein. In connection with the coin discharging devices, a drawer is arranged with compartments for notes and odd coins, the drawer being pressed outward by springs when its locking devices are released, and the entire apparatus is designed to greatly facilitate the making of change, counting money and making it up into packages.

VEHICLE WHEEL TIRE — Samuel S. Elder, Springfield, Ill. This invention provides a tubular cushioned tire which will not be much injured by being punctured, as its body is made up of a series of practically circular or endless springs, arranged at slight intervals apart, and extending entirely around the rim of the wheel against which they bear. All of the springs are bound together by an outer band which fits into depressions of the springs, and the springs are held in their circular arrangement by a second inner band, the entire body being covered by any elastic or yielding material, as rubber, leather, or their equivalents.

VEHICLE SAND BAND. — Charles R Gibson, Woodsville, N H. This improvement comprises a hood having an extension adapted to engage the axle, bands straddling the extension and holding the hood in position on the axle, there being springs between the extension and the bands. The sand band is readily fastened in place on the axle to protect the inner end of the hub, and may be conveniently removed as desired.

WASHBOARD — Frederic J. Merriam and James A. W. Sears, Escanaba, Mich. This board has an improved rubbing surface formed of a filled in double metal plate or sheet, and novel means of locking the parts of the board together against longitudinal and transverse strains, the locking devices giving added strength to the washboard and forming a blind lock, being practically all concealed.

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(7011) W. H. writes: 1. I built a dynamo described in one of your books (dynamos and motors), 20 lights, Edison style; armature is wound 32 coils, 4 layers, 6 wires in each layer, No. 15 double-covered, magnets wound with No. 23 double-covered, 20 pounds on both; by running it two hours the commutator gets so overheated that it throws itself out of true. I have used carbon brushes, also tried copper brushes, and the heating is the same. How can I overcome it? A. Probably your brushes make insufficient contact with the commutator. Try wider brushes, and see that they are trued off at the ends so as to come in good contact with the commutator for all their width. 2. Let me know what is used to make burrs (for feed mill) harder than other cast iron, that is, how to harden them while being cast? A. Cast in chills. The wearing side or end of the burrs should have a piece of iron, cast or wrought, placed in the mould, so that the fluid metal will chill against the iron surface over the part that is required to be made hard. See West's "Moulder's Text Book on Chilling Castings," $2.50 by mail.

(7012) J. C. B. says: Can you inform me of a polish that will remove fly specks from brass gas fixtures, or would some simple plating that could be rubbed on cover them up? Ours are the usual bright kind. I presume they are brass and plated over, as they look as though they were gold plated. A. If you cannot wash off the fly specks with soap and warm water on a cloth, there is no way that an amateur can refinish lamp-work with any satisfaction. To do this, the lamp must be taken apart and the brass work boiled in caustic soda to remove all oil and varnish; then rinse in hot water and dip in strong nitric acid for a few seconds only, when it will come out clean and bright; then rinse clean in boiling water. Dry in sawdust, brush off, and lacquer with thin shellac varnish. The metal must be warm and perfectly free from grease.

(7013) Z. M. A. asks (1) if it is possible to make a rectilinear photographic lens out of two single achromatic lenses by placing their plane sides together and separating them (the two lenses) a short distance, say one-twelfth of the focal length you want. A. Two lenses of same curves will, if set so that greatest curves will be outside, form a rectilinear picture on the ground glass, if swing back is properly used. Whether the negative will be good will depend on the chemical correction of the lenses. 2. About how many times the focal length you want should the lenses be? A. The lenses must be the same focus to get perfect results, both the same focus, which will depend on length wanted in combined lenses. 3. I want to make a lens that will give me a flat view, not drawn out so much as a single lens makes it. A. It is doubtful if a lens can be made that will give a perfectly flat field with a sharp focus all over it, except by the use of a very small diaphragm. The astigmats approximate this result, but whatever flatness they give is at the expense of focus.

(7014) J. W. H. asks whether electricity generated by steam is more economical as a motive power than steam power. A. It is only under exceptional circumstances that it is more economical, as when the steam is generated and used in a large unit and electricity is used to subdivide the power into small units. This may be more economical, because small steam engines are not as economical as large ones.

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October 20, 1896,

AND EACH BEARING THAT DATE.

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