

RECENTLY PATENTED INVENTIONS.

Railway Appliances.

LOCOMOTIVE BELL RINGER.—Daniel Ochse, Oneonta, and John A. Malone, Albany, N. Y. This is a device operated by compressed air or steam to ring the locomotive bell continuously when required, without the attention of the engineer or fireman. A valve is arranged with spring-actuated sections in a compressed air or steam cylinder, the sections of the valve controlling inlet and exhaust ports, and a piston working in the cylinder is connected with a bell crank adapted to ring the bell, there being an operative connection between the piston and valve.

CAR FENDER.—John Landau, Brooklyn, N. Y. This improvement consists of a fender scoop or basket mounted to swing downwardly on striking an obstruction in the path of the car, the scoop descending in such manner that a person on the track must necessarily fall into the basket, and there being also a connection between the basket and the brake shoes by means of which the brakes are applied when an obstruction passes into the basket. The scoop is normally held a little distance above the track. The gripman or motorman can manipulate the brake shoes in the usual way, when the car is to be stopped, without interfering with the position of the fender.

CAR COUPLING.—John E. Thomas, Richmond, Va. This coupling is of the twin jaw type, having one fixed and one pivoted jaw or knuckle, the latter with a shank to be locked by the coupling pin. The shank is curved, and at its free rear end has a tapered lateral extension forming a cam which engages a shoulder on the coupling pin to automatically raise it. The drawhead has an overlapping portion, whereby, in case it is pulled out of the car, it will be supported by the drawhead to which it is coupled, and thus prevented from dropping onto the track.

CAR VENTILATOR.—Benjamin F. Hughson, Cold Spring, N. Y. According to this improvement an elongated flue is arranged to lie flat against the side of the car roof, the flue having flaring ends and box-like extensions with end openings communicating with the flue from the inside of the car. In the boxes are valves by means of which the foul air may be readily removed from a car in motion, the air current being easily regulated and the valves adjusted from inside the car.

Electrical.

ARC LAMP.—Charles Beseler, Jersey City, N. J. An improved feed for arc lamps employed in magic lanterns has been devised by this inventor, the feed permitting the operator to readily bring the light to the desired position. A lever fulcrumed on the lamp-carrying base has at one end pins resting on a fixed part of the lantern, the other end being provided with a screw resting in a step in the base, giving an inclined position to the base when the screw is turned. A removable pronged cap is provided for the lower carbon holder, and a spring-pressed lever supports the carbon and presses it in contact with the prongs.

Mechanical.

GLUE MAKING MACHINERY.—Peter Cooper Hewitt, New York City. Three patents have been granted this inventor for machines in which the process of making glue may be carried on continuously, and by means of which the drying nets may be unstacked, loaded with sheet glue and stacked ready for transportation to the drying room; also for mechanism for taking the stack of nets containing the dried glue from the drying room, unstacking the nets, removing the glue, restacking the nets, and delivering the net stack to a car which conveys it away, one invention providing also for a sheet spacer by which the glue sheet will be supported during its entire travel and in its transfer from one conveyor to another, contiguous sheets being separated and spaced while passing through the spacer. The improvements form parts of a system and method of glue making, comprising apparatus for cooling glue and forming it into sheets heretofore devised by the same inventor, the improved system being designed to supersede the former custom of setting the glue in moulds and forming cakes to cut into sheets which are spread out on nets by hand, thus doing away with manual labor in this and the succeeding operations.

GANG BAND SAW MILL.—Thomas T. Rainford, Tacoma, Washington. This mill is especially designed for cutting a log or piece of timber, at one forward movement, into any desired number of boards of equal or of different thicknesses. The mill has a main driving shaft carrying a series of main saw band driving wheels, there being a frame for each driving wheel supporting saw band wheels in vertical alignment with each other and in alignment with the main driving wheels.

GRINDER AND PULVERIZER.—Richard D. Langley, Brighton, South Australia. This is a rotary machine for working wet or dry ores, and the invention provides for utilizing the weight of the upper part of the machine to give greater attrition in the action of the lower set of rollers, which need not, consequently, be made so heavy. An upper and a lower pan and the accompanying rollers are worked by a vertical shaft, and the upper pan is supported by legs or brackets resting upon the axes of the lower rollers, the pan encircling the main shaft, and being free to slide up and down, but being held by a key or feather to rotate with the shaft. The rollers of the upper pan are supported upon axes which have no radial motion, but are free to slide up and down in guides, and the lower rollers are moved round in grooves of the lower pan, which is stationary, by axes attached to the central vertical shaft.

GRINDER.—Amos Hartley, Ottawa, Kansas. Above a suitable supporting bed, according to this invention, is supported a tool-carrying mandrel adjustable vertically and laterally, and also adapted to turn in a vertical plane, and a grinding wheel attachment is held to move on the bed adjacent to the tool carrying device. The improvement affords a simple grinder which may be readily adjusted to bring a tool to be ground to the exact position required.

POWER PUNCH CONTROLLING DEVICE.

—Gustavus L. Stuebner, Long Island City, N. Y. This device provides for allowing the punch to approach without entering the article to be punched, in order to enable the operator to see that the punch is properly centered, the punch-controlling mechanism being then thrown into gear with the power mechanism, when the punch continues its movement to punch the metal and return therefrom.

Miscellaneous.

STREET SWEEPER.—William S. Kinale, Philadelphia, Pa. In this machine a series of brooms is supported to be driven by the wheels of the vehicle, to sweep the dirt and dust obliquely across the path of the vehicle into the boot of an elevator at one side, the elevator being also driven by the wheels to carry the dirt and dust upward into a collecting chamber.

VENTILATING ATTACHMENT FOR HEATERS.—William Miller, New York City. According to this improvement a valve connection is made between the fire pot of the heater and an air flue connected with branch pipes leading from the rooms to be ventilated, a smoke pipe also having valve connections with both the heater and the air flue, there being means for controlling the valve connections in such a way that the vitiated air is drawn from the apartments to be ventilated in a uniform manner.

KNIFE SHARPENER.—Peter M. Thompson, Anaconda, Montana. For conveniently and quickly sharpening table and other knives, this improvement consists of a frame made in two sections, having on their adjacent faces seats to receive cutters arranged at angles to one another, screws extending through the sections and bearing on the cutters. The cutters cross each other to form a crotch at their cutting edges, and the knife is sharpened by drawing the cutting edge of the blade once or twice through the crotch.

KNIFE CLEANER AND POLISHER.—Horace T. Field, Boston, Mass. To thoroughly and quickly clean and polish table knives, this machine has been devised, operated by a hand crank. It has a shaft carrying unconnected spokes, at whose outer ends are wood blocks where adjacent sides have leather linings between which knives of various thicknesses may be held as the shaft is rotated. Some of the spokes carry powder boxes instead of the wood blocks, the powder being thrown out of nozzles onto the polishing blocks and knives as the wheels are rotated.

VEHICLE SPRING.—States D. Palmer, Marshalltown, Iowa. This invention relates to a road cart spring formed as a double ended coil, and provides a novel nut lock for the ends of the coils, by which the nuts are placed in the coils and shaken to their locking position at the ends, to enable the eyebolt to be screwed in without allowing the nuts to turn, the nut being also permanently locked, so that it cannot come off accidentally and holds the eyebolt in place with a tightly clamped and noiseless connection.

BOTTLE OR JUG FILLING APPARATUS.—J. J. Hagins, Rock Hill, S. C. For filling molasses, sirup and other viscous liquids into bottles, etc., this invention provides an apparatus of which the funnel portion is arranged to hold measures, the funnel being suspended on a frame to fill vessels by tritulation, or pouring through space. A governor device opens or closes the discharge opening according to the weight of contents in the funnel, and directs the stream or drip to one point, to avoid gorging in the mouth of the vessel being filled.

HOOK AND EYE.—Josephine C. Carstarphen, New York City. The hook and eye, according to this improvement, are each formed of a single wire, the hook having an inward bend to form a retaining lug, and each having terminal fastening prongs with serrated edges whereby they may be quickly attached to dresses and other garments without having to be sewed on.

TOY SAVINGS BANK.—Florian J. Bohn, Philadelphia, Pa. This device is based on the principle of a vending or slot machine, and is arranged to deliver a small measured quantity of candy or some substitute therefor whenever a coin is dropped into the bank, on the turning of a key or crank.

Designs.

WOVEN FABRIC.—Halbert E. Parkhurst, Fitchburg, Mass. This fabric also has elongated tuft-like figures raised from the surface in an irregular manner and of varying lengths and thicknesses.

VEHICLE STEP PAD.—Jacob Hummel, Elkhart, Ind. This pad has elongated arms projecting from two adjacent sides, the opposite sides having projecting hook-like devices.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS AND PUBLICATIONS.

THE MANUFACTURE OF EXPLOSIVES. A theoretical and practical treatise on the history, the physical and chemical properties and the manufacture of explosives. By Oscar Guttmann. New York: Macmillan & Company. 1895. Pp. 782 + xlix. 8vo. 147 illustrations. 2 volumes. Price \$9.

This work is a valuable addition to technical literature, giving as it does the latest processes employed in the manufacture of modern explosives. Most of the illustrations are drawn to scale—a valuable feature in a work devoted to technology. The work begins with a history of explosives, then follows an account of the prime materials and ingredients of explosives, followed by the properties of explosives. Black powder and dynamite, Schultze powder, explosives derived from sugar, gun cotton, nitroglycerine, picrates, fulminates, blasting gelatine, smokeless powders, and the Sprengel explosives are fully treated. The chapter on the ap-

paratus for the examination of explosives gives some interesting details of the elaborate methods used in making accurate determinations. There is also a chapter on explosive factories in general, which contains tables showing the safe distances from the works for magazines or other buildings.

THE MODERN WEBSTER PRONOUNCING AND DEFINING DICTIONARY OF THE ENGLISH LANGUAGE. By Edward Thomas Roe, LL.B. Chicago: Laird & Lee. 1895. Pp. 432. 18mo. Illustrated. Price, full leather, gilt edge, indexed, \$1; silk cloth, indexed, marbled edge, 50 cents; silk cloth, red edge, not indexed, 25 cents.

This little work presents in compact form nearly all of the words sanctioned by good authority which are in everyday use. It is printed in clear type and the system of indexing is handy. It contains supplements giving abbreviations and phrases from classical and foreign languages.

POOR'S MANUAL OF THE RAILROADS OF THE UNITED STATES. New York: H. V. & H. W. Poor. 1890. Price \$7.50.

The 1895 volume of this standard work, forming its twenty-eighth annual number, well sustains the reputation it had previously established as a most compact and complete compendium of information relative to the railroad business of the country. The book has come to be indispensable to all who are seeking knowledge in this line, for it is known that the vast array of statistics it presents comes almost entirely from official sources, which the compilation and arrangement make it easy for one to find the figures bearing upon points where information is specially desired. The tables showing the progress and results of the operations of the railroads of the country for a series of years exhibit at a glance the magnitude of the system. The manual is also now made to cover the entire field of investment in the United States, the financial condition, indebtedness, sources of income, assets and population, of every State, county, city, and town, issuing obligations for any purpose, as well as the various industrial enterprises or trusts.

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OCTOBER, 1895.—(No. 120.)

TABLE OF CONTENTS.

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3. A cottage at Flatbush, N. Y., recently erected at a cost of \$4,000. Perspective elevation and floor plans. John J. Petit, architect, Brooklyn, N. Y. An attractive design.
4. An all shingled cottage at Mount Vernon, N. Y. Perspective elevation and floor plans. A neat design in the Colonial style. Mr. Louis H. Lucas, New York City, architect.
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6. A dwelling at Glenwood, Yonkers, N. Y. Perspective elevation and floor plans. Messrs. D. & J. Jardine, architects, New York City. A most unique design.
7. Three perspective views and floor plans of a residence at New Rochelle, N. Y. Architects, Messrs. Stephenson & Greene, New York City. A well treated design.
8. A Colonial residence at Mountain Station, N. J. Two perspective elevations and floor plans. Mr. H. C. Felton, architect, New York City.
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Notes & Queries

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References to former articles or answers should give date of paper and page or number of question.

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(6646) W. I. writes: Kindly decide the following: A says 60 pounds of steam in a small boiler has as much pressure as one twice its size. B says 60 pounds steam in a small boiler (provided it can be kept at 60 pounds) is as powerful as 60 pounds in that of a much larger one. Does 40 pounds steam produce as much heat as 80 pounds? A. The size of a boiler has no relation to its pressure, which is always quoted as the pressure per square inch of surface of the containing shell or tubes. The gross strain on the metal is in proportion to the size. The thickness of the shell is increased in large boilers. The power of a boiler is not alone due to its pressure; the volume of steam that a boiler can furnish at a rated pressure is the measure of its power. The heat of steam when confined is a measure of its pressure, and the reverse. Steam in the boiler at 80 pounds pressure is 37° Fah. hotter than steam at 40 pounds pressure; but as much heat may be obtained from the low pressure boiler, for ordinary purposes, as from a high pressure boiler, but a larger volume of steam must be used.

(6647) W. L. B. asks: What pressure per square inch does the wind exert on a perpendicular surface held at right angles to wind when wind is blowing 15 miles per hour, and how do you figure same for different velocities? A. The force of the wind is usually computed for square feet, which, by dividing by 144, will give the pressure per square inch. The rule is square of velocity in miles per hour, multiplied by 0.005 equals the pressure in pounds per square foot. Thus 15² = 225 × 0.005 = 1.125 pounds per square foot.

(6648) A. M. M. asks for a formula for a mounting paste for lantern slides. A. For attaching lantern slide bindings to the glass nothing is better than bichromate paste, which is used for attaching paper to glass in the manufacture of electric machines, and which is a most useful paste for many purposes in damp climates. It is made as follows: Flour, 2 teaspoonfuls; water, 4 oz.; bichromate of potash, 5 grains. The flour must be rubbed to a smooth batter with the water, then placed in a saucpan over a fire and kept stirred till it boils. Add the bichromate slowly, stirring all the time. Then stand to cool. This paste must be kept in the dark and used as soon as possible. Soak the paper in it, attach to the glass, and then place in direct sunlight for a day. This sets up a chemical change in the bichromate and renders the paste insoluble.

(6649) F. C. B. asks for the formula of Carbutt's new acid fixing bath.

A. Hyposulphite of soda 16 oz.
Sulphite of soda 2 oz.
Sulphuric acid 1 dram.
Chrome alum ½ oz.
Warm water 64 oz.

Dissolve the sulphite of soda in 8 oz. of the water. Mix the sulphuric acid with 2 oz. of the water and add slowly to the solution of soda sulphite; dissolve the chrome alum in 8 oz. of the water, the hyposulphite soda in the remainder, then add the sulphite solution, and last the chrome alum. This fixing bath will not discolor until after long usage, and both clears up the shadows of the negative and hardens the film at the same time. Let remain two or three minutes after negative is cleared of all appearance of silver bromide. Then wash in running