

RECENTLY PATENTED INVENTIONS.

Electrical Devices.

PROCESS OF GENERATING STEAM.—T. W. NEELY, Marshall, Ill. By this process, heat for converting water into steam is supplied internally in relation to the shell of the boiler by an electric arc or two electrodes juxtaposed in the relation of an arc and immersed in the water and introducing at one end of the electrodes hydrocarbon vapor or other gas suitable with the oxygen which may be set free by electrolysis of the water and be burned, and by the heat of the electric arc or hydrocarbon flame to form a supplementary source of heat and pressure within the boiler.

ELECTRIC STEAM AND VAPOR GENERATOR.—T. W. NEELY, Marshall, Ill. The invention is in the nature of a form of steam-generator in which heat for converting water into steam is supplied internally in relation to the shell of the boiler by an electric arc or two electrodes juxtaposed in the relation of an arc and immersed in water. It comprehends means for introducing at one of the electrodes hydrocarbon vapor or other gases adapted to unite with oxygen freed by electrolysis of water and be burned by heat of the arc or hydrocarbon flame to form an auxiliary source of heat and pressure within the boiler.

ELECTRIC RAILWAY-SIGNAL.—W. S. JACKSON, Hoboken, N. J. One object this inventor has in view is the provision of a simple and reliable signaling system which is actuated automatically by a car on entering the siding or turnout constituting a "block" to display signals at "danger," and which is likewise actuated when the car leaves the block of the siding or turnout in order to restore the signals to their normal or safety positions.

SAFETY-TROLLEY.—W. M. GRUNER and W. C. FINK, Springdale, Pa. More definitely stated, the invention relates to a peculiar sub-trolley adapted for catching the conductor-wire upon breakage of the main-trolley sheave or jumping thereof from the conductor-wire, the sub-trolley being also adapted for holding the main trolley lowered or out of contacting position with the conductor-wire supports and at the same time through suitable circuit-closers recomplete the motor-circuit and the sounding of an alarm in a local circuit on the motor-car.

Lighting and Heating.

GAS-BURNER.—C. A. CAMPBELL, New York, N. Y. The prime object of the invention is to so control the circulation of air past the mantle as to produce the best possible results from gas consumed. The improvement lies in a cup which surrounds the burner-tube and is supported thereon, the contracted lower portion of the cup simply engaging the tube and the upper end of the tube flaring out toward the orifices. This cup incloses the lower end of the mantle and protects the burner-tube from the cooling air rising through the perforated support. It also prevents the air from entering the space within the mantle.

COMBUSTION APPARATUS FOR FURNACES.—V. ZANETTI, Genoa, Italy. The practical results of this invention are to increase greatly the percentage of heat from the fuel used for steam-boilers and to diminish or eliminate the soot and smoke, almost completely burned by means of convenient regulation of the ratio introduced through the ash-box and air through the air-tubes, the smoke and soot being already heated up by the incandescing net, and as the velocity of their flight to the smoke-stack is diminished by the net the combustion of the gases and utilization of heat in the boiler are greatly promoted.

Machines and Mechanical Devices.

POWER-TRANSMITTER.—W. H. MERRITT and J. C. WALL, Genesee, New York. The object of this invention is to provide a transmitter which is simple and durable in construction, very effective in operation, and arranged for transmitting the power of a motor or the like to pumps or other machines in such a manner as to equalize the steam and to insure a uniform and easy running of the machine.

TYPE-WRITER.—E. RUNGE, Berlin, Germany. Type-carriers each carrying a number of types are so operated by means of type-disposing devices in this invention that always the required type in correspondence to the key depressed is brought into position for striking and printing. The inventor attains important advantages in respect to simplification of the apparatus for inspection of the parts, whereby the machine is made capable of doing more work, the types are caused to strike better in proportion to the force applied, and the striking force can be adjusted.

AUTOMATIC SHIFTING-WEIGHT SCALE.—C. SCHENCK, 3 Wendelstadtstrasse, Darmstadt, Germany. In this case the invention consists in a pressure which acts upon the beam of the scales, being relieved or taken off when the scales are balanced out, and in a kind of escapement being made to operate upon the further movement of the shifting weight beyond the point of equilibrium, the escapement retarding the movement of the shifting weight and allowing the gentle engagement of the ratchet-pawl.

Pertaining to Vehicles.

LUGGAGE-CARRIER.—F. DALES, Binghamton, N. Y. The object in this instance is to

provide details of construction for a device which adapt it for an easy and secure attachment upon the bicycle-frame, afford a reliable bracket-frame for the support of a package or the like, and enable the secure retention of the luggage upon the bracket-frame by application of a single buckled strap or other available flexible connection.

Prime Movers and Their Accessories.

ROTARY ENGINE.—J. S. DAVIS, Montgomery, Ala. That class of rotary engines, that is provided with a piston adapted to travel in a circle around the shaft to which it is secured, is improved by this invention. The invention is more particularly an improvement in that class of rotary engines in which a sliding abutment is arranged radially between the steam inlet and outlet and is operated by a cam fixed on the rotary shaft.

Railway Accessory.

TRAIN-PIPE-TESTING DEVICE FOR AIR-BRAKES.—W. S. DE CAMP, Chillicothe, Ohio. Mr. DeCamp's object is to enable the engineer to test the line of train-pipes and whistle-pipes and to know from his cab if all the intermediate angle-cocks of the train pipes are open and all the intermediate stop-cocks of the whistle-pipes are also open, and to do this means are provided that enable the engineer to ascertain if all the cocks are open and the air-brake train-pipe and whistle-pipe are in proper condition, for if any intermediate angle-cock of the train-pipe is closed or any intermediate stop-cock of the whistle-pipe, the whistle will not be blown.

Of General Interest.

SAFETY-FASTENER FOR ENVELOPES OR OTHER CONTAINERS.—J. NESWORTHY, St. Johns, Newfoundland. In this patent the invention refers to a fastening for envelopes and other packages or containers for the storage or transportation of valuables, although the fastening is especially useful in connection with envelopes for carrying money, valuable papers and communications by mail or express. It is effective in keeping the envelope or package in a securely-closed condition, which cannot be opened by the insertion of a wire or other implement, and is capable of being easily and quickly manipulated when it is desired to close and fasten the container.

OIL-PRESS MAT.—R. F. WERK, New Orleans, La. The subject-matter of the present invention as well as of the three other inventions noticed in this article, forms a division of a prior application for Letters Patent, filed by Mr. Werk. The present invention contemplates an oil-press mat or cloth consisting of warp-threads and weft-threads, the former being composed of hard, stiff, coarse, and long animal hair and the latter consisting of hard, stiff, coarse, and long animal hair mixed with soft, pliable, and long animal hair, the warp-threads being greatly in excess per square inch of the weft-threads and in such close proximity to each other as to cover and protect the weft-threads, the warp-threads forming the selvage of soft pliable hair. The purpose of Mr. Werk's next invention is to produce a hair mat or fabric durable in service owing to a combination of hair in different grades, and not liable to split or tear apart under the pressure of the seeds and the press-plates; nor will its threads or strands unravel, and it is capable of being folded lengthwise upon itself without breaking. Ends are secured by making warp-threads of soft pliable hair, while the weft-threads are made of coarse, stiff hair mixed with soft pliable hair. The next invention consists of an oil-press mat comprising warp and weft threads, both composed of long animal-hair, the warp-threads of hard, stiff, and coarse hair mixed with soft pliable hair and the weft-threads of soft, pliable hair, the warp-threads exceeding in number per square inch the weft-threads and disposed in close proximity to each other to conceal and protect the weft-thread, the warp-threads forming the selvage of soft hair and the weft-threads of soft hair being thicker than the warp-threads. The claim in the next patent defines the press-mat as consisting of warp-threads and weft-threads, each composed exclusively of long hair from animals' tails and manes, which hair is soft and pliable, the warp-hairs exceeding the weft-hairs in number per square inch, and the weft-threads thicker than the warp-threads.

FLUSHING-TANK.—B. WALKER, JR., Austin, Texas. The purpose of the invention is to construct a tank for flushing water-closets provided with means whereby the water-supply to the tank is automatically controlled without the use of a float, thus obviating corrosions and other well-known causes that tend to leakage whatever float-valves are used.

TOWEL-RACK.—S. A. A. STENBERG, San Francisco, Cal. The principal object in this instance is to provide means whereby a towel may be supported in position for use without utilizing any greater amount of space than ordinarily required for the accommodation of given lengths thereof, and also to provide means whereby soiled portions may be displaced and permanently taken up proportionately as clean portions thereof are caused to be drawn out by the user.

CLIP.—D. E. MAPOTHER, Louisville, Ky. The object in this improvement is to provide a clip or sealing device for envelopes, bags, and like articles which is easily applied, and ar-

ranged to close the mouth to prevent the contents from falling out and becoming lost in transit and on removal of the device from the bag to allow postal authorities or others to inspect the contents, the device being also capable of fastening covers to deeds and of being used for other purposes.

GRAPPLE.—T. ALEXANDER, Brookhaven, Miss. The invention consists in pivoting the hooks of the grapple in recesses in the short levers to which the grapple-suspending ring is attached in the usual way and in providing a spring-detent for engaging the bent shanks of the hooks to hold the latter in normal position facing inward or toward each other; also in providing hooks with lateral projections that constitute handles for use in manipulating the hooks to engage them with or disengage them from a log.

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Manufacturers of patent articles, dies, metal stamping, screw machine work, hardware specialties, machinery and tools. Quadriga Manufacturing Company, 18 South Canal Street, Chicago.

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Names and Address must accompany all letters or no attention will be paid thereto. This is for our information and not for publication.

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

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(9393) W. F. asks: Can you inform me what kind of colored glass or films, or what it is that is used to throw beams of different-colored light on actors and scenery on the stage of a theater? A. To throw colored lights upon an actor on the stage, it is usual to employ either a calcium or electric arc light with a reflector, and place in front of the light a gelatine film colored with an aniline dye of the desired color.

(9394) J. D. L. says: We have a 6-inch condensing lens with a 20-inch focus, and want to use a microscope objective with it in making a sun microscope. In order to get the necessary light, we have to place the objective nearly in the focus which, I understand, is too hot for the objective. Can we make a bath through which to pass the rays of light, thereby taking out the heat and still have the sun microscope work effectively? What should be used as a bath, and how often must it be changed? Could one get along without the bath, by using a single short lens for an objective? In that case, would there be danger of spoiling the microscope slides from the heat? If such a lens can be used, what length focus would it be advisable to get? A. In using the sunlight for projecting microscopic objects, it is necessary to protect the slide by a tank of water placed in the path of the beam, so that the light passes through the water before it reaches the object to be protected. This cuts off the heat to a sufficient degree. The construction of a tank with glass sides is not difficult. The details of the work can be found in Wright's "Optical Projection," which we can send you for \$2.25. Two pieces of plate glass are fastened by clamps with a thick piece of rubber between them, so as to be water-tight. The water should be at least half an inch thick. Tanks are sold with metal sides, so that there is an inch or more water through which the light must pass. The lens for projecting the microscopic objects should not be of longer focus than 1 1/2 inches, and a lens of as short a focus as 1/4 inch may be used.

(9395) J. C. B. asks: 1. If vegetable oil, such as olive oil, etc., will harden in any degree in cold temperature. A. All oils harden more or less by cold; olive oil at 36 deg. Fahr., castor oil at about 34 deg. 2. Will ice sink if it is what is generally called rotten? A. Ice is said to be rotten when it separates into needle crystals and becomes saturated with water. It does not sink, but breaks up into floating needle crystals and is not seen as ice. 3. On what side of a curve does the most weight want to be, or which way will a wagon tip—to the outside or inside of the curve? A. A wagon should have most weight on the inside of the curve. 4. How do tinsmiths retin their soldering irons? A. Tinsmiths tin their copers with pure tin and sal-ammoniac.

(9396) D. S. D. B. asks: Kindly tell me through the columns of the SCIENTIFIC AMERICAN how to lacquer polished brass. A. Brass articles to be lacquered should be first given the required finish and made perfectly clean. Then heat to about 160 deg. and quickly varnish with a thin lacquer of light-colored shellac, dissolved in methylic alcohol made thin like wine by settling and pouring off the clear lacquer. Use a broad camel's-hair brush.

(9397) O. D. S. asks: If a tree fell out on a field where there was no one that could hear it, would there be a noise? How can one prove that there would be a noise, if such the case may be? A. There are two senses to the word "sound" or "noise." The first is the definition given by the physiologist or psychologist: "Sound is a sensation produced in the brain by a disturbance or vibratory motion of matter, which can be perceived through the agency of the auditory nerve." The second definition of sound is that of the physicist: "Sound is a vibratory motion in some material substance, which if it strikes upon the ear of some living being would produce a sensation in the brain." The first definition is directed toward the sensation produced in the living being; the second is directed to the physical cause or action. Your question with reference to the falling of a tree