

Recent American and Foreign Patents.

Under this heading we shall publish weekly notes of some of the more prominent home and foreign patents.

PISTON-PACKING RING.—Charles H. Clark, Wilmington, Del.—The object of this invention is to provide a self-adjusting packing for the pistons of steam engines by which the pressure around the cylinder shall be equalized and the piston maintain a central position without undue pressure on the rubbing surfaces.

HOLLOW AUGER.—George E. Booth, Seymour, Conn.—This invention consists in a device by which the tenons of the spokes for wagon wheels and tenons for other purposes may be accurately and expeditiously made by revolving an auger in a lathe or by a hand brace, the main feature of the invention being in the manner in which the cutters are constructed and adjusted.

HOT-AIR FURNACE.—J. A. Vanburen, South Troy, N. Y.—This invention relates to the manner in which the heat-radiating surface of a hot-air furnace is increased so as to utilize the fuel and properly distribute the heated air.

JOINT FOR STOVEPIPE.—O. M. Pillsbury, Claremont, N. H., and D. L. Milliken, Brattleboro, Vt.—This invention relates to a new and improved manner of securing together the sections or lengths of stovepipe whereby a stovepipe may be readily put up and taken down and the sections or lengths firmly connected together, very close or tight joints being obtained which will effectually prevent the escape through them of either smoke or fire.

MACHINE FOR MAKING NUTS AND WASHERS.—Andrew Emerson, New York City.—This invention relates to a new and improved machine for making nuts and washers, and has for its object the forming of the same with angular or sharp edges and with smooth surfaces or sides so as to have a finished and neat appearance. The chief difficulty attending the manufacture of nuts by machinery is the giving to them a smooth finished exterior and sharp angular corners. Heretofore there has always been a rough surface and the corners rounded in a greater or less degree, a result fully obviated by this invention.

CULTIVATOR.—Edmund H. Knight, Unadilla, Mich.—This invention relates to a new and improved cultivator for general purposes but more particularly adapted for cultivating crops grown in hills or drills. The object of the invention is to obtain a device for the purpose specified which may be manipulated with the greatest facility by the rider and driver and which will admit of the shovels or teeth rising when meeting with obstructions so that they may readily pass over the same and thereby avoid any parts of the machine being broken or injured thereby.

CULTIVATOR.—J. H. Allison, Eureka, Ill.—This invention relates to a new and improved device for cultivating young corn and other crops grown in hills or drills, and also for harrowing in small seeds.

POST-DRIVING MACHINE.—C. T. Fitch, Harbor Creek, Pa.—This invention has for its object to furnish a cheap and convenient machine for driving fence and other posts.

ATMOSPHERIC RAILROAD.—A. H. Caryl, Groton, Mass.—This invention relates to a new and improved means for propelling railroad cars through the medium of compressed air, and is designed for city or street railroads, and to supersede draft animals or horse power now employed for such purpose.

JOINT FOR CHIMNEYS.—Marvin H. Kelsey, Red Bank, N. J.—This invention relates to a new and improved joint to be applied to chimneys where they pass through the roof of a building in order to prevent leakage between the chimney and roof. The object of the invention is to obtain a simple and economical device which may be readily applied and which will effectually prevent leakage around the chimneys, whether the roof be of shingles, slate, tin, composition or other material.

CHURN POWER.—John Christley, Slippery Rock, Pa.—This invention consists in the combination with a walking beam of a treadle the latter being connected to the former by a pendulous arm so that reciprocating motion can be imparted to the dasher rod which is attached to one end of the walking beam either by moving the opposite end of the beam up and down, or by operating the treadle, or by directly revolving the horizontal driving shaft by means of a crank or pulleys or otherwise.

HORSE-SHOE.—C. Weltman, Hazelton, Iowa.—This invention relates to a new and improved manner of securing calks to the shoe whereby the former may be readily secured to and detached from the latter and new calks therefore applied whenever required, without detaching the shoe from the hoof.

CARRIAGE CLIP OR THILL COUPLING.—Edwin R. Powell, Cambridge, Vt.—This invention has for its object to furnish an improved thill coupling so constructed and arranged that the thills or pole may be shifted easily and quickly, and which will at the same time be perfectly secure and free from rattling.

RAILROAD-TRUCK CLEARER.—Walter King, Springfield, Ill.—This invention has for its object to improve the construction of cars for running upon horse and other railroads that the cars may clear and clean the track for themselves by removing obstructions and thereby preserving life by rendering it impossible for any one who may have accidentally fallen upon the track to be run over by the wheels of the car.

SPRING JACK AND COUPLING FOR WHEEL CARRIAGES.—Thomas De Witt, Detroit, Michigan.—This invention has for its object to furnish an improvement in the construction of the jack or supporting springs which connect the half elliptic springs of a carriage to the axle.

MACHINE FOR FORMING BOILERS FOR COOKING STOVES.—Elisha S. Sackett, Monroe, Wis.—This invention has for its object to furnish an improved apparatus by means of which the bodies of sheet metal boilers for cooking stoves may be formed conveniently and accurately.

TOBACCO CUTTING MACHINE.—J. W. Crossley, Bridgeport, Conn.—This invention relates to a new and improved machine for cutting tobacco for chewing and smoking purposes. The invention consists in a novel manner of arranging and operating a knife whereby a drawing cut is obtained, and also in a novel feed mechanism for feeding the tobacco to the knife, all being constructed and arranged in such a manner that tobacco may be cut for the purposes specified with a moderate expenditure of power, in an expeditious manner, and finer or coarser as may be required.

CHURN.—Stephen Ballard, Sen., Sullivan, Ind.—This invention has for its object to furnish an improved churn by means of which the churning may be done very rapidly and thoroughly.

MEDICAL COMPOUND.—Dr. James A. Willis, Cherry Valley, N. Y.—This compound is intended for the removing and curing of bony substances in horses, such as ringbones, spasms, splints, etc.

ORGAN PIPE.—E. B. Andrews, Osborn Hollow, N. Y.—The object of this invention is to so construct the pipe that its tone cannot divide from one key to another, whether the pressure upon the bellows be more or less.

MOP HEAD.—John A. Wilson, Spencer, Mass.—This invention consists of a head or holder for a mop, provided with rollers suitable for wringing the same, when the mop is so hung to the head that at such times as is desired it can be drawn around and between the wringing rollers, without touching it with the hands.

WATER HEATER FOR STEAM ENGINES.—Peter M. Kafer and Joseph M. DeLacy, Trenton, New Jersey.—The object of this invention is to facilitate the extinguishing of fires in cities and towns by supplying the steam fire engine boiler with water already heated to near the boiling temperature before it is started from the engine house.

WINDOW FASTENING.—Philip Verbeck, Neenah, Wis.—This invention relates to a new and improved fastening to be applied to the sashes of windows for the purpose of securing the same at any desired point within the scope of their movement, securing them when closed and preventing them from being either raised or lowered when secured in a partially raised or open state.

STEAM CONFECTION PAN.—G. H. Cross, Montpelier Vt.—This invention consists in arranging a funnel-shaped pan with a false bottom, in a suitable frame the shaft of which would be the neck of the funnel stands in the frame at an angle about 45°. The lower portion of the pan forms a steam chamber, and the funnel is revolved over a fire by suitable gearing.

ROOFING.—Seymour Pratt, Fayetteville, N. Y.—This invention consists in constructing a roofing of hydraulic cement mixed with lime and sand, this composition being pressed into square or other proper shaped blocks or tiles and laid, when in a set or dried state upon boards or lath nailed to the rafters. The cement blocks or tiles are, when laid upon the boards or laths, cemented together by and laid upon the same material in a plastic state as the blocks or tiles are made of.

SPIKE HOLDER.—Edwin W. H. Cooper, Hartford, Conn.—This invention consists in the arrangement of a truncated wedge in combination with a socket intended to receive the spike, and formed of two clamping jaws in such a manner that by the action of said wedge and clamping jaws the spike can be firmly retained in position, and all the disadvantages are obviated which arise if the spike works loose and if said spike has to be driven into different holes in the sleeper. With the clamping jaws and the wedge a suitable shell and an additional strip of wood or other material are combined, for the purpose of securing the spike holder conveniently and securely in the sleeper or cross-tie.

DRY HOUSE.—Judson Schultz, Ellenville, N. Y.—This invention has for its object to furnish an improved dry house so constructed and arranged that substances to be dried of different degrees of moisture may be kept separate, and so that each separate portion may be supplied with more or less heat and air as may be desired.

INTERFERING AND OVER-REACHING ATTACHMENT FOR HORSES.—Frank B. Doughty, New York City.—By this attachment, the interfering and over-reaching of horses can be entirely prevented and permanently cured.

KNITTING MACHINE.—Mark L. Roberts, Chatsworth, Ill.—This invention consists principally in a novel manner of operating the thrower for needles. Also in so arranging the needle operator that its length of stroke can be adjusted and changed at pleasure.

STOVE.—Jonathan H. Green, Christiansburgh, Iowa.—This invention has for its object to furnish an improved stove so constructed and arranged that while answering all the ordinary purposes of a stove, it may have the additional advantage of being convenient for warming the feet when cold.

HARVESTER.—David Wolf, Lebanon, Pa.—This invention relates to a harvester which consists in a novel construction of the platform, whereby the cut grain may be readily discharged therefrom and kept free from the sickle as it is cut. The invention also consists in a novel means for discharging the cut grain from the platform and also in the means for connecting the platform with the main frame of the device, and in an improved ratchet and pawl arrangement for the driving shaft, also constructed and arranged that several advantages are obtained.

BLIND SLAT FASTENING.—F. R. Smith, Bennington, Vt.—This invention relates to a fastening to be applied to a window blind to hold the slats in a closed or partially closed state, and prevent them when closed, from being opened on the outer side of the blinds when the latter are shut.

FIRE ESCAPE.—Alfred Eigney, New York City.—This invention relates to a fire escape, which is held in a carriage, and can be transported to any desired place, like a fireman's ladder. It consists mainly of a flexible ladder, the side pieces of which are made in sections, hinged together one round being in each section. The ladder can thus be easily wound around a horizontal drum or shaft, contained in the aforesaid carriage. On the hinged side bars between the rounds, are arranged slides which fit close around the side bars, so as to remain in any position in which they may be placed.

HOT AIR FURNACE.—E. H. Camp, Jackson, Mich.—This invention relates to the manner in which the heat radiating surface of the furnace is increased, and to the manner in which the products of combustion are made to return through the fire box in a flue.

GAS BURNER AND HEATER.—H. Y. Lazaar, New York City.—This invention relates to certain improvements in the construction of gas burners for cooking and heating purposes, so that the flame can be thrown toward one common center, thereby intensifying the heat, which construction also allows of the introduction of an air tube for heating purposes, the flame surrounding the said tube and heating the air which passes through the same.

POWER HAMMER.—Thos. F. Preston, Pawtucket, R. I.—The object of this invention is to construct a power hammer in such a manner that the hammer will not flap about loosely, but that its motion will be perfectly steady, and that no shock will be communicated to the working parts above.

BEER AND MASH COOLER.—C. Wise and B. Loeffler, New York City.—This invention relates to an apparatus for cooling the works in the manufacture of beer, but may be used with advantage in all kinds of distilleries and for other purposes. It consists in the use of a circular horizontal vessel, into which the heated mash is poured. In the center of the vessel a vertical shaft is arranged, which receives rotary motion from a belt or otherwise, and on which a number of wings are attached, in such a manner that by the same the vapors which ascend from the liquor are thrown aside and fresh air brought into their place, so as to rapidly cool the liquor in the vessel. The liquor itself is kept in motion by a set of stirrers, arranged on the revolving shaft, and by chains attached thereto, which prevent the settling of any residue and help to rapidly cool the liquor. The fan as well as the stirrer are arranged adjustable on the aforesaid shaft.

PAPER BAG MACHINE.—Gustav L. Jaeger, New York City.—This invention consists in the arrangement of a movable former made of tin or other suitable material, in combination with two or more movable flaps or wings, which turn the blank over the former in such a manner that by the former itself the blank is held in position, and a triangular or square paper bag can be made with little trouble and expense.

SPICING, BURNING, BURNISHING, AND BLUEING STEEL SPRINGS.—A. B. Doolittle, Hartford, Conn.—This invention relates to a machine which is intended to burr and burnish steel springs after the same have been hardened and tempered, and to blue them when burnished, all in one operation. To prevent the rivets which are used in splicing the springs from injuring the burnishing rollers, the ends of said springs are struck up so that the heads of the rivets are not allowed to come in contact with the burnishing surfaces.

BALANCED SLIDE VALVE.—Alfred Hobbs, West Cambridge, Mass.—This invention consists in forming the valve and valve seat of a steam engine in a semicircular form, whereby the downward pressure on the same is neutralized.

Answers to Correspondents.

CORRESPONDENTS who expect to receive answers to their letters, must, in all cases, sign their names. We have a right to know those who seek information from us: besides, as sometimes happens, we may prefer to address the correspondent by mail.

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at 50 cents a line, under the head of "Business and Personal."

W. A. T., of Kansas.—"Will it injure a rifle to fire shot from it?" Yes. The shot passes straight through the barrel and consequently across the edges of the rifling. Remember that a soft metal in rapid motion will wear away the hardest iron. You can saw a file in two by a disk of copper or lead revolved in a lathe.

W. E. G., of Pa.—Flour paste, well boiled alone or mixed with glue will serve the purpose of repairing the bellows of your melodeon.

J. J., of N. Y., made an induction coil for giving shocks which operated well at first, but soon lost all its power. Probably by rough handling it has lost its insulation, or the connections with the battery are imperfectly or wrongly made.

S. L., of Ohio.—The effect of magnesium with other metals is to render the alloy brittle. We are not aware that any alloy of magnesium has yet been made which is likely to prove valuable in the arts.

H. C., of Pa.—A good coach varnish or drying oil thinned with turpentine will be good to restore the luster of the iron work of your fireplace which has been dulled by the heat. . . . The yellow stains on the margin of engravings may be removed by a solution of hypochlorite of soda, commonly called Labarraque's solution.

P. C. M., of N. Y., plays the violin and finds that his hands perspire so much that the strings are soon worn out and the instrument is continually getting out of tune. There is probably no treatment of the strings which would satisfactorily answer his purpose. Any foreign matter put on the strings to render them perspiration proof might be a remedy worse than the disease. We suggest that he try finger stalls made of very thin india-rubber.

M. L. M., of N. Y.—You can extract the silver from old watch cases and similar alloys by dissolving in nitric acid, and precipitating chloride of silver with a solution of salt. The silver is reduced in a pure state by mixing the chloride with an equal weight of bi-carbonate of soda and smelting in a common sand crucible. . . . Napier's electro-metallurgy is a practical treatise. We are not acquainted with any book in English which treats especially of watch repairing or engraving.

A. M., of Pa.—We have seen speaking tubes several hundred feet long. A conversation without doubt might be carried on through a properly proportioned tube a mile or more long.

A. W. G., of Ohio.—The best conductors of heat are also the best conductors of electricity. There is no metal or other substance which at the same time is a conductor of the one and a non-conductor of the other. . . . The substances which absorb heat most rapidly are the best radiators. The heating and cooling of anybody take place in equal times.

W. B., of Pa.—"Will a one inch water-tight pipe, issuing from a head of 100 feet above the level of the sea, deliver water at the sea, when the pipe is carried over a hill, the top of which is 150 feet above the sea?" The pipe cannot carry the water on the principle of the siphon, for the siphon depends upon the pressure of the atmosphere which lifts water only thirty-four feet. In the case proposed the water is to be lifted 50 feet. Resort must be had to a force pump.

C. A. H., of N. J.—In the recipe to which you refer, for the word, parts' read 'pounds' and you will understand it.

D. W. S., of Mo.—In reply to your question relative to men-haden oil we reply that it is manufactured by C. F. and J. B. Henshoff, Bristol, R. I.

O. J. P., of C. E., asks if two cylinder engines do better work for a steamboat than a single cylinder of the same capacity as the two united. If the steamboat is driven by a screw two cylinders are required, if by paddle wheels one is sufficient and if of equal power is in our opinion, preferable on all accounts. The "dead points" you speak of are of no account in a paddle engine; the wheels act as fly wheels.

W. L. B., of Pa.—"If a water wheel be set in motion by water and is made of imperishable material would it be what we understand by perpetual motion?" No. Perpetual motion, as understood by scientists and mechanics, is not simply a continual movement but an imaginary machine which produces its own power. Perpetual motion is really a perpetual humbug deluding and ruining its votaries.

J. T. H., of Mass., asks whether the inventor of the "new dryer for raw oils" mentioned in No. 17 current Vol., desires to keep it secret or to sell. He advises him to advertise it. We do not know who the inventor is nor what he intends to do with his discovery. Perhaps the correspondent, A. W., who gave the statement can reply to J. T. H. and others who have requested the same information.

S. M. B., of Tenn.—We suppose the use of sand in taking a welding heat on iron is to preserve the outside from being burned before the interior portion is of the proper temperature. As a flux it also preserves the surface from slag the presence of which would prevent securing a thorough joint.

B. F. J., of Wis.—Iron and some other metals permanently expand by heat; at least they are expanded while hot. Probably the grate bars in your furnace were fitted when cold to touch the back and front. It would not be surprising, therefore, that they should bulge out your furnace front. You should allow at least an inch for expansion in grate bars of three feet.

H. C. D., of N. Y., asks what are the component parts of a solder a very little harder than tinman's soft solder, something that will melt and flow by the blaze of a spirit lamp. Tinman's solder is lead, 1, tin 1. Probably the addition of a small proportion of antimony would increase the hardness and yet leave it fusible enough. Perhaps some of our correspondents can give a recipe.

F. L. C., of Md.—Cucumbers, celery and lettuce contain oils which may be extracted by a solvent. The yield however would be small.

A. S., of N. Y.—"Jones' lamentable squeak (see page 298), can be stopped by putting a peg in the middle of the sole of his boot."

G. W. S., of Pa., argues thus: Steam is lighter than air, rises in the air and buoys up whatever contains it, consequently by reason of this lightness of steam, the pressure on the upper side of the boiler is greater than on the lower. The reasoning is fallacious. What makes steam rise in air is the upward pressure of the air. In a closed rigid vessel like a boiler, there is no pressure of the air and a tendency of the steam upward on that account. The weight of the steam moreover is an addition to the pressure on the bottom of the boiler.

R. B., of N. J.—Mr. Ansell the inventor of the fire damp indicator lives in England. A letter addressed to him at London, care of Wm. Crookes, Esq., will reach its destination.

A. J. B., of N. J.—A non-drying cement of great tenacity, useful in fastening together plates of glass so as to exclude the air, but which may be easily separated, is formed by adding fresh slacked lime to doublets weight of india-rubber, heating to about 400 deg. F. when the rubber will be converted into a glutinous mass. A drying cement is made by mixing equal weights of such gum, lime, and red lead.

A. A. C., of N. Y.—The diapason, or tuning fork, as it produces at will an invariable note, is used for regulating the sounds of musical instruments, and also furnishes a standard for the musical scale. The tone denoted by the letter, A, is produced by 438 vibrations of air per second. Piano fortes are generally tuned below concert pitch, A3, corresponding to 420 sound waves per second.

E. N. G., of Tenn.—The dimensions of the Albany boat, the *St. John* are: length 47 feet, width over all 80 feet, beam 50 feet. The engines are 21 inch cylinders and 15 feet stroke. Estimated horse power over 1800. She has accommodations for 700 passengers, is registered as 2,525 tons burden, draws from six to six and one-half feet of water, and her speed is from 15 to 17 miles per hour. The *Mary Powell* averages 20 miles an hour, and on several occasions has made 27 miles. If the Mississippi steamboat makes 12 miles against a current of 8 miles per hour, if running down stream with the current in her favor, she would make 28 miles with the expenditure of the same amount of power.

W. S. H. Jr., of Pa.—We must receive indisputable proof that the Nicolson pavement is injurious to horses from its "rebound" before we shall believe it. We think the unyielding rigidity of stone pavements is one of its serious objections. We do not regard the Nicolson pavement as "essentially the same as a plank road," as in the latter case the grain of the wood is horizontal, the best position for springing, and in the former the grain is vertical, the proper position to secure firmness.

Business and Personal.

The charge for insertion under this head is 50 cents a line.

Wanted—location for Portable Saw Mill—steady sawing, from one to five years. Address Marion Lumber Company, Midway, Washington county, Pa.

Wanted to correspond with some person having a second-hand portable steam engine to sell, not less than 8 or 10 horse-power. Direct J. E., Rockwood, Ill.

E. J. Fay, Camden, N. J., wishes the address of all paper manufacturers, so as to correspond with them.