

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; beside, as sometimes happens, we may prefer to address correspondents 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 \$1.00 a line, under the head of "Business and Personal."

All reference to back numbers should be by volume and page.

J. M., of N. Y.—To ascertain the amount of horse power which is the equivalent of the steam delivered through a pipe into a tank containing water, the best way for you will be first to ascertain the evaporative power of your boiler in relation to the amount of fuel consumed. From this you can ascertain the horse power of your boiler and the amount of fuel it takes per horse power. Then ascertaining the amount of fuel saved by cutting off the tank during a given time, under average circumstances you can compute from that the horse power delivered.

P. D., of Va.—Straw is bleached by simply exposing it in a closed chamber to the fumes of burning sulphur. An old flour barrel is the apparatus most used for the purpose by milliners; a flat stone being laid on the ground, the sulphur ignited thereon, and the barrel containing the articles to be bleached turned over it. There is no English work on chemistry applied to the arts fully up to the times. Muspratt's chemistry is perhaps as good as any.

H. R., of Ill.—The diagram you send us and the explanation accompanying it lead us to suppose that in the construction of your trunk a too common error has been committed. Both the pipes and the wooden trunk are too small, to give you water enough when the level in the dam is low; you should increase their capacity to 400 inches and put a stand pipe in your bulk head as high as the level in your dam when it is full. This will remove the difficulty.

C. E. R., of Ill.—The exact height of a column of mercury that will be sustained by a pound of pressure per square inch anywhere, is a column that contains one pound of mercury for every square inch of its base, provided the column be of equal size throughout. This height will vary for all different temperatures, the question you ask us cannot therefore be more definitely answered.

R. J. H., of Mo.—The traveling glass blowers use gas sometimes, but more commonly good sperm or lard oil burned in a lamp with a large wick, perfect combustion being secured by means of a foot blow-pipe. The glass used is a peculiar kind of soft glass made specially for that and other purposes. It can be purchased of dealers in chemical apparatus.

E. E. W., of N. B.—We find upon inquiry of practical rubber men that the difficulty you experience in getting your cement, made by dissolving rubber in naphtha, to harden readily, is not met with by them, and they do not use any other substance to accelerate the hardening. The benzine in evaporating leaves pure rubber and of course it possesses the usual elasticity of that material.

W. H. S., of Pa., asks if we can inform him of any substance that will keep insects from destroying an entomologist's collection. According to the *Entomologist*, the insects which do the principal part of destruction in cabinet specimens are small beetles, difficult of extermination. As a preventive none but very tight boxes should be used for the cabinet. Camphor should be always kept in the boxes and the specimens frequently examined. When a collection has been attacked pour a solution of corrosive sublimate on the bottom of the boxes. It will kill all the bugs that touch it.

L. H. H., of Vt.—We see no reason why you should not be able to remove borax, after brazing, with simple hot water. There is no occasion for using nitric acid. Are you not mistaking the film of solder for borax?

J. K., of N. Y.—You must use more tin in your solder to get the required brilliancy, from 1½ to 2 parts tin to 1 of lead, instead of equal parts each.

S. W. R., of Mass.—We understand that the term "monkey" as applied to a hand wrench is merely a nick-name. Its use is entirely meaningless so far as we know.

C. C. R., of Kansas.—Your suggestion to support foot bridges across rivers by means of balloons is not new. It is impracticable.

J. B., of N. J.—Permanent agencies for the general sale of patents have not been very successful. One good invention will usually occupy the undivided attention of the agent until it is sold. Hence the difficulty of keeping a shop full of models.

Recent American and Foreign Patents.

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

MOP HEAD.—Samuel Gantz, Beaver Creek, Md.—The object of this invention is to provide for public use a simple and cheap mop head, which can be conveniently operated, and which will hold the mop securely.

BOOT CRIMPER.—John B. Aikin, Somerton, Ohio.—The object of this invention is to provide for public use a boot crimper which can be very quickly and conveniently operated, and which will crimp the boot without wrinkling the leather at the instep.

WASING MACHINE.—B. Brecken, Lexington, Va.—In this invention a set of vertical beaters are employed, operated by a rotary shaft, and combined with a revolving tub, an apparatus for raising all the beaters at once, and a heater for keeping the water at any desired temperature during the operation.

COOKING RANGE AND STOVE.—H. R. Robbins, Baltimore, Md.—This invention consists in so combining an air chamber with the ovens and fire space of a cooking range or stove that the heat generated in the fire space shall not only serve for the cooking of food, but also for the warming of air during its passage to other apartments in the house.

ICE-CREAM FREEZER.—Joseph Sissons, Town of Horncastle, England.—The object of this invention is to provide for public use an apparatus which will freeze cream in a less time than by the ordinary freezers now in use, while at the same time it produces a finer article of manufactured ice cream than has heretofore been made by machines for a similar purpose.

CHURN.—James S. Huffman, Brownsburg, Va.—This invention is a novel and convenient attachment for operating the common upright churn, so constructed as to be adjustable to the height of the operator, and to have the means for adjusting the stroke of the dasher so that the latter can be operated with more or less power and velocity, and with different lengths of stroke. It can be used with any upright churn, new or old, without any change therein.

MACHINE FOR BORING POSTS AND POINTING RAILS.—John Young, of C. Fair View, and C. I. Grumbine, Frederick, Md.—This invention relates to the machine patented by John Young, of C. July 10, A. D. 1855, No. 13,243, and consists in making the augers employed in that machine, adjustable, to adapt them to crooked as well as straight posts; in providing two rotary knives, of peculiar construction, to sharpen the rails and in the novel construction of

the device which operates the clamps that hold the rail, whereby it is more easily and effectively managed than in the old machine.

HEATING APPARATUS.—Francis Raith, Calumet, Mich.—The object of this invention is to utilize the heat of the products of combustion in a wood or coal-burning stove, and to thereby economize fuel. The invention consists in a novel arrangement of air passage, by which the air is carried through the stove and through the smoke pipe to become heated.

COMBINED RAKE AND HOE.—N. Harper, Philadelphia, Pa.—This invention relates to a new manner of constructing a combined rake and hoe, by forming the same of one single piece of metal.

COMPOSITION BOWL FOR MANGLES, WASHING MACHINES, ETC.—Thomas Harcastle, of the Bradshaw Works, near Bolton, England.—This invention consists in manufacturing bowls for starching, and other mangles, washing machines, squeezers, calenders, and other articles, of coccoanut fiber, or coir, or other fibers of palm trees.

AUTOMATIC DOUGH RAISER.—John Stark, Thomasville, Ga.—The object of this invention is to produce an apparatus in which dough can be caused to rise to the requisite height without requiring to be guarded by an attendant, and without any danger of its rising higher than desired. This apparatus will be very useful, not only to bakers, but also, and chiefly, in households, as the dough can be put in in the evening and can rise during the night, so as to be ready for the oven the next morning.

Plows.—E. Ward, Louisville, Ky.—This invention relates to a new plow, in which the share is composed of three parts, in such manner, that if any one of the parts becomes destroyed by wear or otherwise, it can be readily replaced without requiring the whole share to be renewed. The invention consists chiefly in forming a standard and landside support on the mold board of the plow, so that the landside can, by means of but one bolt, be securely fastened to the same.

VELOCIPÈDE.—L. H. Soule, Mount Morris, N. Y.—This invention relates to a new manner of arranging a velocipède, so that the two hand wheels can be readily brought together or apart, in order to produce a two or three-wheeled instrument. The invention consists in attaching the rear wheels to hinged arms, which can be swung more or less together at the pleasure of the operator, to produce the desired effect while the instrument is at rest or in motion.

CORPSE PRESERVER.—John L. Clark, Providence, R. I.—This invention relates to a new corpse preserver, which is so constructed and arranged, that the ice will be prevented from melting rapidly, and that the dead body will be surrounded by constantly circulating cold air. The invention consists in the general arrangement and construction of parts, the main feature being that the body is laid upon a perforated plate, and not into a box, as usually, the box being in this case put over it, when it has been properly placed upon said plate.

TUBULAR STEAM BOILER.—James Howard and Edward Tenney Bonsfield, Bedford, England.—The main object of the present invention is to facilitate the removal from boilers of the scum that is thrown up by the water employed in certain localities, to improve the connections between the vertical and horizontal tubes which compose the boiler, and also to facilitate the detachment and removal of any one or more of the vertical tubes when required.

DRAWERS.—Eros B. Johnson, Milwaukee, Wis.—This invention has for its object to improve the construction of bureau drawers, stand drawers, table drawers, sliding doors, etc., so that they cannot bind or stick when being drawn out or pushed in.

TURBINE WATER WHEEL.—V. M. Baker, Preston, Minn.—This invention has for its object to improve the construction of water wheels so as to make them more effective and convenient in use, and enabling them to utilize a larger per cent of the power of the water, and to be more conveniently operated than when constructed in the ordinary manner.

HAY AND COTTON PRESSES.—L. Dederick, New York city.—This invention has for its object to improve the construction of hay, cotton, and other baling presses so as to make them more convenient and effective in operation, the follower being made to move up and down with a uniform movement in all its parts, and with increased power as the bale is compressed more and more.

COMPOSITION FOR CLEANING MARBLE, STONE, ETC.—Alpheus C. Ford, Lynn, Pa.—This invention has for its object to furnish a simple and effective composition for cleaning tombstones, and other marble and stone articles.

MOUNTING THE PORCELAIN ROSE FOR DOOR KNOBS.—Charles L. Bates, New York city.—This invention has for its object to furnish an improvement in mounting the porcelain roses of door knobs, by means of which they may be more securely and durably secured in place, and may not be liable to become loose.

WASHING MACHINE.—Ira A. Newhall, Crooked Creek, Pa.—This invention has for its object to furnish a simple, convenient, and effective washing machine, doing its work quickly and well, and without injuring the articles being washed.

HORSE HAY RAKE.—Steven J. Halstead, Margaretville, N. Y.—This invention relates to certain improvements in the manner of arranging the levers for swinging the rake head, and to a new device for adjusting the teeth at any desired distance from the ground, and also to a new manner of attaching the teeth to the rake head.

SAFETY ATTACHMENT FOR RAILROAD TRUCKS.—Patrick S. Devlan, Jersey City, N. J.—This invention has for its object to furnish an improved attachment for railroad trucks.

CORN SHOCK BINDER.—John E. Hunter, Mechanicsburg, Ohio.—This invention has for its object to furnish a simple and convenient machine for drawing the stalks of a corn shock together to receive the band.

ADJUSTABLE BED AND FRAME FOR DROPS, TRIP-HAMMERS AND DRILLS.—Nathan P. Maker, Providence, R. I.—This invention relates to a new device for adjusting the bed of a power or hand drop, press, trip-hammer, upright drill, or other similar machine, so that said bed may at will be placed into a horizontal or slanting position, as may be desired.

COAL SCUTTLE.—John L. Ellithorp and Peter Sloan, Canajoharie, N. Y.—The object of this invention is to produce a portable coal scuttle, which will not spill coal or other contents when in use, and which can be made at an inconsiderable additional expense above a common scuttle.

STOVE PIPE SHELF AND OVEN.—J. A. Miner and H. J. Torrey, Wellsville, N. Y.—The object of this invention is to provide a stove pipe shelf and oven or cover, for use with cooking stoves for keeping articles warm, and so arranged that the shelf may be readily attached to or detached from the pipe, and be rotated thereon if required.

WAGON JACK.—J. Newton Thatcher, Martinsburg, West Va.—This invention consists in the arrangement upon a suitable stand, of an elevating lever having an adjustable fulcrum on the said stand for vehicles of different heights, and a holding bar for holding the lever when the vehicle has been raised up.

VEGETABLE KNIFE.—Wm. Veber, Jr., Shingle Creek, N. Y.—This invention relates to improvements in knives intended to adapt them for paring vegetables, such as have depressions in their surfaces, especially potatoes.

HAY RAKER AND LOADER.—Albert Clark, Caniz, Ohio.—This invention consists in an improved raking device applied to the rear of a cart having an elevating chute up which the rake is caused to move when loaded, and deliver the hay to the rear of the rack, behind which the cart is attached.

AUTOMATIC CUT-OFF AND GOVERNOR VALVE.—Charles A. Conde, Indianapolis, Ind.—This invention relates to improvements in valves, for admitting and cutting off, to steam engines, more particularly designed for governor valves, for throttling the steam and for an automatic stop valve to cut off the steam in case of accident. The invention consists in a sliding, sectional, and open cylinder valve operating longitudinally in its chamber, in connection with suitable ports in a properly constructed seat or chamber.

FEATHERING PADDLES.—Wm. C. Rice, Okawka, Ill.—The object of this invention is to provide a paddle wheel for propelling vessels, in which the floats or buckets are feathered, that is to say, made to remain in a perpendicular position with reference to the plane of the water.

MEASURING FUNNEL.—G. B. Massey, New York city.—This invention relates to a new and improved liquid measuring funnel, and consists in indicating the quantity on a wheel revolved by either a coil spring or weight and by a float which rises with the liquid, and also a valve on the bottom of the funnel, which is opened and closed from the top of the funnel.

TIRE-SETTING MACHINE.—Francis Mills, Mount Vernon, Ind.—This invention consists of a table for supporting the wheel on which the tire is to be set, so arranged on a suitable frame that when the hot tire has been placed on the wheel, the table may be turned on an axis to present one portion of the wheel into a trough of water, and allow it to be turned on a central pin supporting the wheel in its eye, so as to pass the rim of the wheel through the water for cooling it.

WATER WHEEL.—J. C. Smith, Mahanoy, Pa.—This improved wheel is similar in its construction, and the mode of its operation, to the wheels patented by Andrews, Andrews & Kalback, and Haag & Smith. It differs from the wheels just mentioned, as also from many other horizontal wheel with upward discharge, chiefly in the form of its buckets.

WASHING MACHINE.—J. M. Shuck, Okaloosa, Iowa.—This invention relates to improvements in washing machines, and consists in the arrangement of a pair of vibrating wash boards, operating in conjunction, the one having a surface corrugated horizontally and vertically, and the other composed of vertical bars, arranged at suitable distances apart, the spaces between coinciding with the vertical lines of protuberance on the first-mentioned board.

DEVICE FOR MULTIPLYING MOTION ON A SINGLE SHAFT.—Lemuel Scudder Fithian, Brooklyn, N. Y.—This invention relates to a new and useful combination of cog wheels, whereby motion may be increased on a single shaft, thereby greatly simplifying the methods in common use for that purpose, and it consists in arranging a series of face and pin, or communicating wheels, on a horizontal shaft.

FRICTION CLUTCH AND BRAKE.—Darius Banks, New York city.—This invention relates to improvements in friction devices for connecting or disconnecting a driving pulley, or other wheel fixed loosely on the driving shaft, having constant motion, so as to stop or start the said wheel at will, or to vary the motion thereof. It relates also to a friction brake mechanism, so combined with the clutch devices as to be operated by the same moving power, and to act in conjunction therewith.

FORMING THE EYES OF NEEDLES.—Abel Morrall, Studley, England.—The object of this invention is to form the eyes of all kinds of needles in such manner, that the thread or sewing material may be securely retained in the eye, without stopping, during the time the needle is employed in its work. The invention consists in forming a kind of double eye, or an eye having a double curve, which from its shape forms two separate eyes that are connected together, the upper part being by preference nearly round and smaller than the lower part, which is by preference of an oval or loop shape, so that the double eye is not unlike the sole of a boot or shoe in form.

RAILROAD SCHEDULE, ETC.—Sidney E. Allen, Company Shops, N. C.—This invention relates to a new and useful improvement in facilitating the transaction of business, on railroads, and at railroad stations, whereby much time and trouble is saved, and consists in arranging in a compact manner, a list of stations on any railroad, a passenger and freight tariff and time table, with classification of freight, inclosed in separate compartments in a case of convenient and novel construction.

APPARATUS FOR HOISTING HOSE.—J. J. Lovell, New York city.—This invention relates to an improved device to be used in hoisting hose over buildings for throwing water upon fires, to facilitate the said hoisting and protect the cornices and the hose. It consists in an adjustable pulley support, capable of attachment to any cornice, provided with a grooved pulley, over which the hose may be drawn with much less effort, than when the same is drawn over the edge of the cornice as is commonly done, and without damaging either the cornice or the hose, as now frequently happens.

CRANKED AXLE FOR WAGONS.—T. E. Lutner, Philadelphia, Pa.—This invention relates to improvements in cranked axles for wagons, trucks, etc. whereby it is designed to provide such a construction of the same as will admit of more room between the vertical portions of the axle, without increasing the distance between the wheels, than is afforded by the present construction.

WATER-CLOSET VALVE APPARATUS.—John Keane, New York city.—This invention relates to improvements in apparatus for governing the flow to and from the basins of water closets, whereby the water valve is worked automatically, and regularly by a standing cylinder.

DISTILLING AND CONDENSING APPARATUS.—Albert Gray, New York city.—This invention relates to new and useful improvements in apparatus for producing fresh water for use on shipboard and for other purposes, from salt water and from other impure water, and aerating the same.

NEEDLE SHARPENER.—A. S. Dinsmore, New York city.—This invention has for its object to furnish an improved needle sharpener designed especially for sharpening sewing machine needles whose points have been broken off.

COAL BREAKER AND SEPARATOR.—L. P. Garner, Ashland, Pa.—This invention consists in an improved arrangement of breaking rollers, separating hopper, grate and screw, also certain improvements in attaching the spokes to the breaking wheel or cylinder.

DETACHABLE CALK FOR HORSE SHOES.—Kingston Goddard, Richmond, N. Y.—This invention has for its object to furnish an improved horseshoe calk, which shall be so constructed and arranged that it may be conveniently attached when required for use, and as conveniently detached when no longer required.

ADJUSTABLE BED-BOTTOM.—Ellhu Hoag, Coxsack, N. Y.—This invention has for its object to improve the construction of bed-bottoms in such a way that the part of the bed bottom towards the head of the bedstead may be conveniently and gently raised and lowered, and securely held at any desired angle for convenience in changing the position of invalids.

DUMB WAITERS.—Arnout Cannon, Jr., Poughkeepsie, N. Y.—This invention has for its object to improve the construction of dumb waiters so as to make them stronger, safer, more durable, and more easily controlled, so that they will remain stationary in any position in which they may be placed, both when loaded and when empty.

CARBURETERS.—C. F. Dunderdale, New York city.—This invention has for its object to furnish an improved carbureter for attachment to brackets, chandeliers, pendants, or other gas fixtures, and which shall be so constructed and arranged that the air to be carbureted may be heated by the flame which it is intended to feed.

WAGON SEAT.—Andrew Shelton, Edon, Ohio.—This invention has for its object to furnish an improved seat for wagons, carriages, etc., which shall be so constructed as to ride easier and steadier, be more durable, and less liable to break or injure the clothes of those riding upon it than the spring seats constructed in the ordinary manner.

HOISTING ATTACHMENT TO PORTABLE HORSE POWERS.—Peter Cary, Coeymans, N. Y.—This invention relates to a new and useful improvement in method of loading and unloading portable horse powers, used in thrashing grain, and for other purposes, and it consists in attaching to the rear end of the ordinary endless chain horse power a transverse shaft with ratchet and pawls with ropes or chains connected therewith for hoisting.

REVOLVING CHRISTMAS TREE.—F. A. Geisler, Bristol, R. I.—This invention relates to a new and improved device for exhibiting toys, jewelry, and other articles on Christmas eve, and at other times, and consists in a vertical shaft having shelves attached thereto, with a wind wheel on its top end, and made to revolve by rarifying the air beneath the wind wheel.