ator previous to being returned by the racks or pinions to its normal position on the car.

HOOP SKIRT.—Louis Feilheimer, New York city.—This invention relates to the manufacture of hoop skirts and particularly to the method of fastening the tape to the steel spring, and it consists in passing the steel spring transversly through one eyelet and then climbing or passing down the inner end of the eyelet on to the steel.

BOLT TRIMMER.—Henry Howe, Oneonta, N. Y.—This invention relates to a new device for trimming bolts, rivets and other suitable articles, and consists of a cutter sliding within the lower part of a slotted plate, so that its bottom is flush with the under side of the plate. Reciprocating motion is imparted by means of an oscillating cam, working on the said plate, and by means of a spring catch projecting from the rear end of the cutter. The cutter is supported in the plate by having beveled edges which rest upon the similar-shaped inner edges of the slot in the plate. The cutting edge of the tool and the corresponding abutting edge of the plate are set diagonal, so that a drawing cut is produced on a reciprocating cutter.

LOCK.—John G. Spathlef, Sandusky, Ohio.—This invention relates to certain improvements which are applicable to door locks, safe locks, trunk locks, spring locks, pad locks, and all other kinds of locks.

WOOD SAWING MACHINE.—Henry A. Daniels, Thomaston, Conn.—This invention consists in arranging the bearings of the crank shaft in the same slide to which the swinging saw frame is pivoted, so that the distance between the working and swinging centers cannot be varied. The invention also consists in the use of a reciprocating block, which turns loose on the wrist pin of the crank and which slides between two parallel bars that form part of the swinging frame.

COFFEE ROASTER.—Freiderich Max Bode, Vienna, Austria.—This invention relates to a new coffee roaster, which consists of a spherical shell hung in a semi-spherical jacket, its one axis being hollow and serving as a filling and discharge opening. The shell can be revolved by means of a handle attached to the cover of the aforesaid hollow axis, which cover can be removed to allow the filling in and discharge of the coffee.

CARRIAGE CLIP.—Thomas McCreary, Matteawan, N. Y.—This invention relates to a new device for connecting the shaft of a carriage with the front axle of the same by means of a pivot which will not rattle, which cannot easily get out of order, and which can be readily removed to allow the shaft to be taken off. The invention consists in securing the pivot to the end of the shaft and not to the clip, as usual, and in then hanging it loose in the ears of the clip and in locking it to the same by means of a spring catch.

SEWING MACHINE.—Stephen French, Orange, Mass.—This invention relates to a new shuttle sewing machine, and consists in so combining with each other an oscillating shuttle driver, a double cam-feed motion, and a slotted plate for moving the needle up and down; that in one machine the main advantages of many different kinds of sewing machines are contained whereby a complete and satisfactory operation, as well as great simplicity of construction can be obtained.

HAND PUNCH.—J. D. Higgins, Greenville, Conn.—This invention consists in arranging a sliding tubular punch in an arm that is parallel with, and projects from the lower jaw, and in holding the punch by means of a spring constantly against the upper or pressing jaw. When the punch is to be used it is by the upper jaw forced toward the lower one, but is at the same time always guided in the aforesaid arm so as to remain perpendicular to the face of the lower jaw.

MACHINE FOR DRIVING FENCE POSTS.—Isaac J. Parker, Buffalo Grove, Iowa.—This invention relates to a machine for driving fence posts and is designed to be placed upon a wagon or any suitable frame mounted on wheels; the device being constructed in such a manner that it may be operated while on the wagon and, drawn from place to place where the posts are to be driven.

SWITCH LOCK.—John V. Chamberlain, Cincinnati, Ohio.—This invention relates to a lock for railroad switches, and it consists in a novel construction and arrangement of parts, whereby the lock is rendered self-locking and a very simple and durable lock obtained; all springs and small parts which are liable to get out of repair being avoided.

LIQUID MEASURE.—Ward Sprague, Sandy Creek, N. Y.—This invention is designed to obviate the difficulty attending the measuring in cold weather of thick viscid liquids, such for instance as molasses, sirups, etc., etc.; and to this end the invention consists in constructing the measure with double walls with a space allowed between to receive water or other suitable fluid, while, by placing the measure on a stove it is kept warm and whenever the measure is used the heat radiated from the walls of the measure will render the contents of the same sufficiently fluid to flow readily.

FLATTENING AND BENDING RODS FOR CHAIN LINKS.—Peter Hendricks, Trenton, N. Y.—This invention relates to a machine for flattening and bending rods for the manufacture of links for chains such as are used more especially for mining purposes. The invention consists in a peculiar construction and arrangement of parts whereby the two different sized links required for the manufacture of each chain may have the rods of which they are formed, flattened and bent on one and the same machine.

CENTERING LATHE.—Benjamin F. Bee, Harwick, Mass.—This invention relates to a new centering lathe designed for centering articles, that is, adjusting their ends centrally in line with the bit of the lathe so that the article may be drilled centrally or leave center holes made properly in their ends in order that they may be fitted centrally in a turning lathe.

AUGER FOR.—H. D. Pennoyer, Athens, N. Y.—This invention relates to an improvement in augers, and it consists in providing a top piece to fit on the upper end of the auger shank and receive the handle, said top-piece being composed of two parts and provided respectively with pawls and a ratchet, whereby the auger may be turned and holes bored in close proximity to any vertical fixtures where an ordinary fixed handle cannot be turned, and at the same time admit of the handle being adjusted and turned as usual in places where there is room to allow it.

SULKY PLOW.—Benj. Slusser Sidney, Ohio.—The object of this invention is to simplify the construction of sulky plows so as greatly to reduce their cost, while yet enabling them to be capable of easy operation, of ready adjustment, and of yielding to immovable obstacles without breaking.

LOW-WATER INDICATOR.—T. G. Eiswald, Providence, R. I.—The object of this invention is to furnish a neat and convenient instrument, which, being attached to the head of a steam boiler, will enable the engineer at any time to try the condition of the water in the boiler, and will, of itself, sound an alarm whistle when the water gets too low for safety.

COMBINED LOW-WATER INDICATOR AND TRY COCK.—T. G. Eiswald, Providence, R. I.—This invention relates to that class of low-water indicators in which a fusible plug is employed, and consists in a simple and convenient device by which the interior of such indicators can be kept clear from the accumulation of dirt, sediment, or scale, and by which, when such foreign substances have accumulated in the indicator, they may be blown out at any time and the interior of the indicator left perfectly clean and free. The device by which these important objects are attained, can at other times be employed conveniently as a try cock.

CLOTHES WRINGER.—P. Cramer, Providence, R. I.—This invention relates to a new clothes wringer, which consists of four rollers, one of which is an elastic roller, held loose between the three other rigid rollers. The elastic roller is not hung in bearings, and need therefore not be formed on a metallic or wooden or other axle, but will be soft and elastic throughout.

WINDOW WIPER.—B. F. Burgess, Boston, Mass.—This invention relates to a new and improved method of cleaning windows, and it consists in arranging on a handle, of any desired length, a revolving frame made of tin or other suitable material, and attaching rollers thereto on which wiping or washing cloths are wound and unwound.

PAIL EAR.—Geo. E. Eastman, New Hartford, N. Y.—This invention relates to an improvement in bail ears for pails or buckets, and for other vessels of a similar construction, whereby they are rendered much more durable than the ordinary bail ear, and the invention consists in forming the ear with a branch exterior stay and and an interior stay, which are connected with the main plate of the car, whereby the main plate is guarded and protected from injurious lateral strain and rendered strong and durable.

COMBINED WINDOW AND BLIND FASTENING.—Wm. L. Barnes, Irvington, N. Y.—This invention consists in a device by which the blind and sash of a window can securely be fastened on the inside by combining the two fastenings.

OIL CUP.—Sylvester Charnley, Portage City, Wis.—This invention consists in so arranging a valve in an oil cup that it can be raised by the motion of the part to which the cup is attached and closed by its own gravity, so that the discharge of the oil will depend upon the rapidity of the motion up and down.

EXTENSION LADDER.—John A. Smith, Lacon, Ill.—This invention has for its object to furnish an improved extension ladder, designed especially for firemen, painters, and tinners' use, but which shall be equally applicable for other uses, which shall be simple in construction, easily adjusted, extended, and moved from place to place.

DOOR MAT.—Wm. Young, Franklin, Mass.—This invention has for its object to furnish a simple, cheap, and serviceable door mat, which may be made single or double, large or small, in one piece or in sections, and which, when worn, may be refilled with little trouble and at trifling expense.

EVAPORATOR.—N. Evinger, Terre Haute, Ind.—This invention has for its object to furnish an improved apparatus for evaporating cane or other saccharine juice for the manufacture of molasses and sugar.

TRACK CLEARER.—John Callaghan, St. Louis, Mo.—This invention has for its object to furnish an improved device for attachment to street railroad cars, by means of which the cars may be made to clear the track for themselves.

TABLE CUTLERY.—Wm. Clayton, Bristol, Conn.—This invention relates to a new manner of attaching the bolsters to the shanks and handles of knives and forks, and consists in attaching a wrought or cast metal bolster to the shank and handle by means of Babbet or other metal, cast around the lower part of the bolster. The shank is perforated, and the upper edges of the scalesor handle are recessed, as well as the lower edge of the bolster, so that a slot is formed through handle, bolster, and shank, through which the metal is cast; its two parts being thereby connected to lock the two parts of the bolster firmly together, and to the handle.

TANNERS' HOOK.—James Hoffman, Belvidere, N. J.—This invention has for its object to furnish an improved hook for tanners' use in handling hides in the vat, which shall be so constructed and arranged as to handle the hides without injuring their grain.

APPARATUS FOR CLARIFYING CANE JUICE.—Wm. Dill, Houma, La.—The object of this invention is to provide a simple and effective apparatus for straining and clarifying cane juice.

CRAYON HOLDER.—Rufus Wright, Brooklyn, N. Y.—This invention relates to improvements in the cases or holders for crayons which are used in drawing by artists, and in schools and institutions of learning for demonstrating problems on the blackboard.

GIB AND SELF-OILER.—Cyrus B. White, Port Richmond, N. Y.—This invention relates to an improvement in self-lubricating gibs for steam engines, and is an improvement on a device for that purpose patented by Wm. A. Devon, Nov. 19, 1867. The object of the invention is to avoid the waste of oil caused by the motion of the cross head, and while effecting this end to obtain a perfect or reliable bearing at all times of the friction roller against the guide.

BACK-BAND HOOK.—Charles Waek, Evansville, Ind.—This invention relates to harnesses used on horses for plowing and other purposes, and consists in forming the hook in such a manner that the chain which it supports is securely kept in place when in use.

CORN SHELLER.—A. C. Mills, Oaktown, Ind.—This invention has for its object to furnish a simple, convenient, and effective instrument for shelling corn, and which shall at the same time be durable and cheap.

BOOTS AND SHOES.—William Smith, Whitehall, Bridesburg, Pa.—This invention consists in inserting in the sole of a boot or shoe strips of wood, metal, or other suitable material, in such a manner as to preserve the sole from wear, and to admit of said material being readily withdrawn or detached from the sole when, from wear or other causes, it becomes necessary to have new ones attached. The object of the invention is to protect the sole of the boot or shoe from wear by a means which will not disfigure the same or be at all conspicuous even when applied to light or "dress" boots and shoes.

SMUT MACHINE.—E. McLane, Young America, Ill.—This invention relates to a machine for depriving grain of smut and other impurities, and it consists in a securing device of peculiar construction and a novel arrangement of a suction blast, whereby a very powerful and efficient blast is obtained without wasting or blowing away the grain, and the grain secured in the most thorough manner by a very compact device.

MACHINE FOR DRESSING SLATE FRAMES.—W. F. Mosser, Allentown, Pa.—This invention has for its object to so improve the construction of slate frame machines that each slate may be automatically fed from a pile, have their corners rounded off and their edges dressed, and may then be fed cornerwise to the revolving planers by which both sides of the frame are dressed, so that the slates may come from the machine completely dressed.

CYLINDRICAL FILTERING PRESS.—Pierre du Rieux and Edouard Roettger, Lille, France. Patented July 21, 1868.—This invention relates to an improved construction and arrangement of the parts of filtering presses, designed especially for use in sugar houses, whereby a more efficient working is obtained and all danger of the machine exploding under pressure is avoided, and the operations of filtering the liquid parts and casking the solid parts of semi-liquids may be conducted with more speed, regularity, and efficiency.

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 advertisemets at $1 00 a line, under the head of "Business and Personal."

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

J. A., of N. Y., asks: 1st, Whether a weak solution of carbolic acid applied with a watering pot to garden walks will be an effectual mode of preventing the growth of weeds. 2d, What should be the strength the solution. 3d, In what form can the article be procured. 4th, Is there anything in the nature of the substance requiring precaution in using it. Answer, 1st, It will. 2d, The solution must be very weak, 1 part carbolic acid in 1,000 to 2,000 parts of water. 3d, It may be procured pure, in the form of white crystals, very fusible by a slight heat, and very volatile. It may also be had impure and much cheaper, as a solution contaminated with hydrocarbon oils and naphthalin, which however are no objection to the use proposed, for these last substances are not soluble in water, and therefore easily separated when dissolving the acid. 4th, Pure carbolic acid is a virulent poison. When applied in too strong a solution larger plants may suffer; very weak solutions destroy only very small plants and animals, as parasites, miasma. Even flies and musketoes avoid its odor and may be driven away by it.

L. J. S., of Mass.—There is at present no book published on the details of the subject you inquire about, it being quite new. Chemists apply the carbonic acid either as a gas, or dissolved in water, or combined with a volatile base as carbonate of ammonia. The pure liquid carbonic acid is a most intractable substance, as it requires some 40 atmospheres pressure to prevent its volatilization, and when this pressure is removed it volatilizes so rapidly that the remaining liquid solidifies.

W. G., and T. S. H., of Ill.—A reference to the ordinary treatises on physics will enable you to answer for yourselves the questions you ask. We do not wish to burden our columns with answers to questions which have no practical utility and answers to which may be found in any text book.

A. W. H., of Pa.—We cannot recommend any process for preventing the fermentation of milk.

E. P., of N. Y.—1st, Leather can be covered with a film of india-rubber varnish, and still retain its strength and pliability. Such leather may be had in this market. It is perfectly waterproof at the side where the varnish is applied. 2d, Pens of hard rubber or vulcanite have been made. They are tolerably good, but they wear out too soon. Lately they have been improved with gold and irridium points. We use such pens, and they give great satisfaction. Those of gutta percha do not keep; they become brittle by oxydation.

S. W. W., of Mass., sends us some fine specimens of iron pyrites in cubic crystals and asks their value. Their marketable value is nothing; as mineralogical specimens some may esteem them.

G. M., of Ill., thinks there may be something in the electrical theory of steam boiler explosions because there have been a great number of boiler explosions and accidents by lightning this season occurring at about the same time. He believes there is yet some unknown cause or causes for boiler explosions, and prudently suggests investigation, etc., We believe a boiler constructed on correct principles, of good material, with good workmanship, and managed by a competent person is as safe from explosion by "mysterious" causes as a cooking stove. But let us have the facts of these mysterious explosions. The mystery generally disappears when the facts attending an explosion are discovered by investigation.

T. W. B., of Pa., sends a diagram and explanation of the relative positions of crank and piston of steam engines. His problem is solved by trigonometry, and we differ from him when he says his explanation is "free from the usual objectionable intricacy of algebraic mathematics." Our mechanics generally understand more of algebra than of trigonometry, We think our explanation on page 20, current volume, preferable to his more ambitious attempt.

J. S. R., of Pa., writes of a "perpetual motion" (more correctly designated a "self-mover)" which is running in his neighborhood, it being a "combination of wheels, levers, and rolling balls," and is a puzzle to all mechanics who have seen it. He wants some competent expert to come and examine it. When "combinations of wheels, levers, and rolling balls" will generate and develop power we shall be glad to "make a note on't."

P. J., of N. Y.—We cannot give a recipe for a preventive and defence against musketoes. A remedy for the pain of the sting is aqua-ammonia. The preventives used are various. Hunters and fishers in the woods of Maine and the wilds of the Adirondacks make a "smudge," a smoke of birch and hemlock bark, etc., in which they sit and into which the winged pests dare not venture; or, they smear their faces and hands with lard or other grease, neither of which remedies are applicable to civilized society. Some persons have faith in bunches of pennyroyal hung in their windows and doors; others use spearmint, in the herb or as an extract—oil or essence. We have no sure preventive but "grin and bear it."

D. P. B., of Mass., says, "I am a machinist of a dozen years' experience, yet I must acknowledge that I find difficulty in turning tapers of the same dimensions even when the pieces are of exactly the same length. Can you help me?" If the bight of the point of the turning tool is not changed when one piece is taken out of the lathe and replaced by one of exactly the same length, the taper on both will be the same. The best course is to keep the point of the tool exactly at the center. This can be done by testing the point by the points of the centers of the "live" and "dead" arbors at each change of pieces, or whenever the tool is removed for grinding and replacing. In ordinary turning the point of the cutter may be above the center, but not in turning a taper.

E. A. B., of Conn.—Will air be exhausted from an air chamby water running under a heavy head? Ans., It will. Is there any automatic device for replacing it when thus exhausted? Ans., We think not,

S. H. E., of Ill.—"Will anything except the limestone now used prevent the slag from sticking to the sides of cupolas?" Fluor spar marine shells and other substances will answer, but limestone is the cheapest material known.

Business and Personal.

The charge for insertion under this head is one dollar a line.

Inventions Patented in England by Americans.

[Compiled from the "Journal of the Commissioners of Patents."]

PROVISIONAL PROTECTION FOR SIX MONTHS.

1,978.—MACHINERY FOR DRAWING ROVINGS AND SPINNING YARNS.—Geo. W. Philip, Philmont, N. Y. June 18, 1868.

2,008.—MACHINE FOR POLISHING NEEDLES.—Chauncey O. Crosby, New Haven, Conn. June 22, 1868.

2,022.—CONSTRUCTION OF FOLDING CHAIRS.—C. O. Collignon and Nicholas Collignon, Closter, N. J. June 23, 1868.

2,023.—CONSTRUCTION OF BRICK MACHINES.—Peter Hayden, Pittsburg, Pa. June 23, 1868.