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

Hoor Skirt.-Louis Feliheimer, New York city.-This invention relate to the manufacture of hoop skirts and particularly to the nucthod of fasten ing the tape to the steel spring, and it consists in passing the steel spring transversly through one eyelet and then elmebing or passing down the inner end of the evelet on to the steel.

BOLT TRIMMER.—Henry Howe, Oneoita, N. Y.—Thisinvention relates to new device for trimming bolts, rivets and other suitable articles, and consist 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 sup ported 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 draw ing cut is produced on a reciprocating cutter.

Lock.-John G. Spathlef, Sandusky, Obio.-This invention relates to cer tain 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 in vention 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 beween 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 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 at tached to the cover of the aforesaid hollow axis, which cover can be re moved to allow the filling in and discharge of the coffee.

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

SEWING MACHINE.-Stephen French, Orange, Mass.-This invention re lates 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 PUNCE.-J.D. Higgins, Greenville, Cone.-This invention consists in arranging a sliding tubular punchin an arm that is parallel with, and project from the lower law, and in holding the punch by means of a spring constant ly 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, Buffile 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 oper ated 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 railroads witches, and it consists in a novel construction and arrangement of parts, whereby the lock is rendered self-locking and a very simple and durable look 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 instanceas 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 LINES.-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 es pecially for mining purposes. The invention consists in a peculiar construction and arrangement of parts whereby the two different sized links re quired 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 re lates 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 maybe drilled centrally or leave center holes made properly in them ends in order that they may be fitted centrally in a turning lathe.

AUGRA 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 boles bored in close proximity to lany vertical fixtures where an ordinary fixed handle cannot be turned, and at the same time admit of the handle being adjusted and turned as usua 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 addjustment, and of yielding to immovable obstacles without breaking.

Low-wayre 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, Provi dence, 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 sub stances 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 d vice by which these important objects are attained, can at other times be em ployed conveniently as a try cock.

CLOTHES WRINGER .- P. Cramer, Providence, R. I.-This invention re lates 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 elastite 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 clastiet broughout.

WINDOW WIPER. - B. F. Burgess, Roston Mass. - This invention relates to 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 ou which wiping or washing closhs are wound and unwound.

PAIL EAR .- Geo. E. Eastman, New Harttord, N. Y .- This invention related 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 hail ear and the invention consists in forming the ear with branch exterior stay and and an interior stay, which are connected with the mam plate of the car, whereby the main plate is guarded and protected from plurious 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 fast cnings.

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

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 Mar.-Wm. Young, Franklin, Mass.-This invention has for its object to turnish 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, maybe refilled with little trouble and at triffing expense.

EVAPORATOR. - N. Evinger. Terre Haute. Ind. - This invention has for its ob ect to furnish an improved apparatus for evaporating cane or other saccha rine juice for the manufacture of molasses and sugar.

TRACE 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 them selves.

TABLECUTLERY .- Wm. Clayton, Bristol, Conn .- This invention relates to a new manner of attaching the holsters to the shanks and handles of knives and forks, and consists in attaching a wronght or cast metal holster 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 olster firmly together, and to the handle.

TANNERS' HOOK.-James Hoffman, Belvidere, N. J.-This invention has or its object to turnish an improved hook for tanners' use in handling hides in the vat. which shall be so constructed and array god as to handle the hides without in juring 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 relate to improvements in the cases or holders for crayons which are used in draw ing 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 inven tion relates to animprovement 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 Ruidc.

BACK-BAND HOOK .- Charles Wack, Evansville, Ind .- This invention relate 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 se curely kept in place when in use.

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

BOOTS AND SHORE.-William Smith, Whitehall, Bridesburg, Pa.-This in vention consists in inserting in the sole of a boot or shoc stripsof 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 othercauses, it becomes necessary to have rew ones attached. The object of the invention is to protect the sole of the boot or shoe from wearby 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 relate 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 thor ough manner by a very compact device.

MACHINE EOR 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 corner wise 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 improve construction and arrangement of the parts of filtering presses, designed es pecially for use in sugar houses, whereby a more efficient working is ob tained 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 in formation 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 in struction 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 carbo ic 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 vir ulent poison. When applied in too strong a solution larger plants may suffer very weak solutions destroy only very small plants and animals, as para sites, miasma. Even fles and mucketoes avoid its odor and may be driver 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 solidifles.
- 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 vou ask. We do not wish to burden our columns with answers to ques tions which have no practical utility and answers to which may be found

- 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 investiga-
- 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 explanafree 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, prefcrable 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 heels, levers, and rolling balls," and is a puzzle to all mechanics who have seen it. He wants some competent expert to some 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 aquaammonia. 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 herbor as an ex tract-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 hight 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 toolexactly 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 noder 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.

I he chargefor insertion under this head is one dollar a line.

Furniture factory for sale .-- Is in perfect running order and can be purchased cheap. Shipping advantages excellent. Power, steam. For particulars address Wm. Wmslow, Peru, ill.

Troy.--Broughton's lubricators have been in use three years. They have proved superior to all others. Over 1000 are in use in this city, D. Southwick, Troy, has them.

Wanted-to negotiate for philosophical apparatus. Send priced catalogue to J. R. Ray, Sacramento, Cal.

For circular of best baling press for hay or cotton, or any other purpose, address L. & P. K. Dederick, Albany, N. Y.

Manufacturers of, and wholesale dealers in, notions, fancy goods, etc., may find a customer by addressing (with card, etc.,) box 499, Oil City, Pa.

Wanted—a second-hand 30-horse power engine and boiler, portable preferred, by D. R. Edwards, Ceres, N. Y.

Peck's patent drop press. Milo Peck & Co., New Haven, Ct.

Send for description of Huntoon governor on entirely new principles. 103 State st., Boston, or 79 Liberty st., New York.

Bolt-heading machine just finished and ready for operation. May be seen at McLazon & Stevens'. New Haven, Conn.

Broughton's double-bottom oilers are the cheapest and best,

For descriptive circular of the best grate bar in use, address Hutchinson & Laurence, No. 8 Dey st., New York. Wanted-breech-loading shot guns made on contract, royal-

ty, or shares. Address Box 786, Washington, D. C. Millstone-dressing diamond machine, simple, effective, and

durable. Also, Glazier's diamonds, diamond drills, tools for mining, and other purposes. Send stamp for circular. J. Dickinson, 64 Nassau st., N.Y. Prang's American chromos for sale at all respectable art

stores. Catalogues mailed free by L. Prang & Co., Boston.

or breech-loading shot guns, address C. Parker, Meriden, Ct.

Winans' boiler powder (11 Wall st., N. Y.,) 12 years a standard article for preventing incrustations. Beware of imitations and pretended agents.

#### 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. 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, 1865.

#### Improved Self-Acting Gate.

The gate which the engravings illustrate has no springs or similar mechanical devices, but opens and closes simply by its own gravity. The main peculiarity is its method of hanging, not depending, from hinges placed in a vertical line, but from two points considerably removed from the vertical, in their relations one to the other. The foot is pivoted to a ring or staple fixed in the lower end of a post, and the top of the gate to the arm of an upright crank, as at A. This crank turns in staples secured to the post, the lower one a little out of the perpendicular. It will be seen that the lower gate hinge is at the back of the upright, and the upper at the front. The lower end of the upright crank has a horizontal foot, B, to which is pivoted two horizontal rods connected

with two double right-angled cranks, C, one on each side of the gate. When one of these cranks is in a horizontal position the other is upright. The elevation or depression of one or the other partially rotates the upright crank at the gate post, elevates the forward or latch end of the gate, and throws the top of the hinge end of the gate at an angle toward the direction in which the gate will swing This change of position changes the center of gravity, and the gate swings swiftly by its own weight to place, where it is held by a latch, shown enlarged in Fig. 2. This latch is without rivet, and closes by a simple flat spring, which having very little action and being concealed in the gate upright, is not liable to de-

rangement. A diagonal brace extending from the lower front of the gate to the upper part of the rear upright serves, by means of nut and screw, to keep the gate in position if it should at any time tend to sag. In the engraving, for convenience of illustration, the lower hinge and the rods connecting it with the night-angled cranks are shown above the surface; but, in fact, they are below the ground, the rods being inclosed in gas pipe so that no water can reach them, and the lower pivot is guarded by a suitable casing of cast iron. The double cranks are operated by the wheels of a carriage or the pressure of the pedestrian's foot, and are placed at a sufficient distance from the gate to permit it to swing without interfering with the team.

An adaptation of the principle of the gate may be used, by which the gate is operated by means of handles or levers on posts connected to the operating crank by stout wires, the handles being touched by the rider in passing. Small hand gates, hung in the same manner, may be constructed to be opened by a latch in the ordinary way.

Patented July 9, 1867. All applications for rights, gates, etc., should be addressed to the American Gate Company, 225 Superior st., or box 2,156, Cleveland, Ohio.

## Method of Locking the Nuts of Fish Plates.

|B|

Frequent jarring will rapidly loosen nuts however tightly they may be screwed up. Ordinary check or outside nuts are

not proof against it under usual circumstances; but the jarring of the rails on a road over which frequent trains pass, is a harder trial than that of any ordinary machinery. Nuts holding the bolts of fish-plates on rails are continually requiring adjustment.

The improvement herewith illustrated provides blocks placed between the nuts which effectually prevent them from turning. The letters, A, represent the adjacent ends of two contiguous rails, held in place by the fish

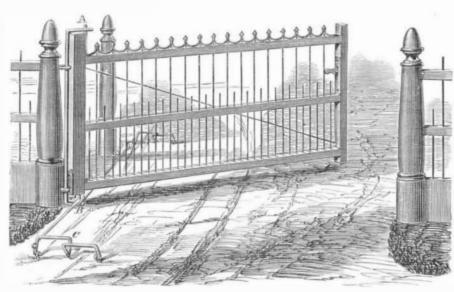
bolts, C, which pass through them and the web of the rails, and are held by the nuts, D. Blocks, -E, of wood or other received a letter from him, however, not many weeks ago. He was living in and especially the hands and feet, fanning, and plenty of air suitable material, are made of suitable size and shape to fit | a little country town, where he had gone for his health, and was studying into the space between the opposite sides of the two adjacent nuts to be locked. The block or locking piece is held in place by a rivet headed screw or nail, F, which may pass through the fish-plate its head being between the fish-plate and the rail, and should have a small nut screw on its outer end. which end should then be slightly riveted down on the nut. In case old fish-plates are used, a plate, G, of wrought or cast iron may be placed on the outside of the fish-plate, through which the bolts, C, and the screws, F, pass, the head of the screw being between the plate, G, and the outer side of the fish-plate. These explanations may be readily understood by reference to the sections, Figs. 2 and 3.

Patented through the Scientific American Patent Agency, July 7, 1868, by Samuel Garber, who may be addressed at Greenville, Mercer County, Pa. [See advertisement on back

## PERSEVERANCE ONE GREAT ELEMENT OF SUCCESS.

It may be doubted if the statement, too commonly accept-

just; yet it must be conceded that, generally, success attends well-directed and persistent endeavor, and that the qualities of discretion, prudence, and perseverance are proofs of ability in their possessor. That a "rolling stone gathers no moss" is correct in fact, and the sentiment, properly applied, is also true. Not only does human experience in these days teach the necessity of "sticking to one's business," the fact that vacillation and irresolution, and want of perseverance are ruinous to success, but the Scriptures teach the same truth. Jacob said of Reuben: "Unstable as water, thou shalt not excel." St. Paul said: "To them who by patient continuance in well-doing, seek for glory, and honor, and immortality-God will render-eternal life." If a young man has decided upon the business he intends to follow through life and serves



## NICHOLSON'S PATENT AUTOMATIC GATE,

allows a brilliant offer to embark in some other business to move him. His road to success lies through the routine of his chosen business. Life is too short, even in this fast age and this fast country, for a man to attain eminence or even success in two or more branches of business. Exceptions there are, of course, but they only prove, from the prominence given them in the public prints, that they are exceptional. The case is very well stated in the following, cut from an exchange. Many who have been close observers of life can recall instances similar in kind if not degree:

"I am writing a play," said an intimate friend to us one day years ago. "I'd like you to hear it, you have had some experience in literary matters." We found the play in an unfinished condition, but so far as it was in a form to be heard, it was very interesting and sufficiently witty. Ite writer had undoubted tale:t-

"How comes on the play?" we asked as we met our friend, four weeks from that time. "Pretty well; but, by the way, come around to my room this afternoon; I have a plan to talk over." The play was not brought out that afternoon. Its writer talked medicine to us an hour or two. He had learned of a remarkable root, grown in the East Indies and very scarce, but a certain cure for rheumatism and consumption, scarlet fever and sore throat. One man in England, an M.D., had introduced it there. He knew its secret, and would probably sell it to him at a low figure. He intended to start for England directly.

"When do you go away?" we asked, not many weeks after this. "Away?
Where?" "To England." "Oh—yes—I'm not going just now—by the way -I've got aplan. When I was in Cuba I saw how, this sugar business was conducted-do you know there are immense profits in it? I have a friend who sails between here and the Island. I'm going to get him to buy some

Fig. 1

spite of the many obstacles to be overcome. The nature of these may be estimated from the fact that the cutting is not only very deep, but also so narrow that that the space between the sides and the cars, when passing, does not exceed twenty inches. This stone has been widened so as to erect masonry. The widening isdone by small blasts, in order that no great mass of rock may be thrown on the track, and thus delay the constantly passing trains. A portion of the space excavated is used for building the walls, while the arch is constructed of five layers of brick placed side by side. Shafts will be placed at intervals for ventilation and the escape of smoke. These will rise ten feet above the grade of Fourth avenue, and have a light iron cover to prevent anything falling through. On account of the want of space below, all the stone blasted out has to be hoisted up by derricks to the level of the street, cut into shape, and then lowered when needed in the erection of the wall. About 830 linear feet of mason work has already been completed, leaving 270 feet more to be built. The total length will be 1,600 feet, including the solid rock section between Ninety-second and Ninety-fourth streets. This last will be the most difficult portion of the whole, as the work will all have to be done from below with scarcely any means for removing the debris.—Sun.

### The Chemistry of Sunstroke,

The effects and the treatment of sunstroke are well understood in this country, where the malady is one of frequent occurrence-more frequent, probably, in the hottest months, than in any other parts of the world. But the cause of the

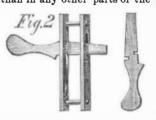


Fig. 3

sunstroke is as yet a mys-The intense heat (merely as heat) of the solar rays is not the agent of mischief. Thehuman body may be exposed to the Turkish bath of 140°, and remain in it for an hourd without injury. This is a much higher range of heat than that of the atmos-

an apprenticeship to it, he should consider carefully before he phere at which sunstroke often occurs, viz.: from 100° to 110° (in the sun). Men working in zinc furnaces or iron foundries are subjected to a heat above 120°, but they are not prostrated to the ground with the phenomena of the sunstroke. The human organization is fitted to endure a much higher pitch of heat than any we have named. Experiments are recorded of men sitting quite comfortable in ovens while chickens were slowly browning by their side. How does it happen, then, that at a temperature of the open air, comparatively so low, men melt away (as the popular saying is) with heat?

A writer in the Journal of Commerce says, the reason must be looked for in the character of the sun's rays. The heat of the sun differs from every other heat, as the light of the sun differs from every other kind of light. This is a fact so well known as to need no demonstration. The effect of the sun's heat upon plants—as contrasted with artificial heat—is the most familiar, and, perhaps, the most striking illustration at hand. All animate and inanimate things are subject to precisely the same great laws of nature; and the solar heat which makes the flowers droop and close their petals, as if to shut out the dazzling rays, is not without its marvelous chemical effect upon the sensitive brain of man. The effect, we say, is chemical—just like the effect of poison. Strychnine, cyanide of potassium, arsenic, morphine, and the other deadly drugs do not work more marked organic changes in the system than a sunstroke. The countenance of the vic-

tim is dark-clouded and injected with blood, and a post mortem examination discloses congestion of the brain, lungs, and heart. These are the effects, varying in degree, of the administration of poisons. The chances of recovery from poisoning are far better, if remedies are seasonably applied, than from sunstroke. The latter is almost always fatal with persons of delicate health or full habit.

As to remedies, there is no im provement on the old ones. The application of ice to the head and under the armpits, brandy and

water, or other stimulants, administered internally, a mustard plaster on the stomach, vigorous chafing of the body -these are restoratives efficacious where anything is of

## GARBER'S PATENT LOCK-NUTS FOR RAILWAYS.

plates, B. These are secured on the sides of the rails, by sugarforme, and Illgeta little corner store-live cheaply, you know-and in less than two years-

We wished him success with his new plan and have not met him since. We inistry. This reminded us of the fact that t himself for the ministry of another denomination. He actually went to Europe to finish his education, gave up the idea, returned to this country, and went into the navy. He afterward engaged in business pursuits for a few years, then took up literature; then came the various plans which we have noticed and now a friend informs us that he had given up the ministry again, and is about to go on a farm and raise honey.

This reads like a fiction or a burlesque; every word of it is literally true and the man to whom it refers will read this article. He has talents which are admitted by every friend he has ever had. He might find a name in literature. He would succeed in business; he would make an excellent minlster. He is an exceedingly agreeable companion. His life, however, will be an absolute and total failure. It will be failure simply because he has no continuity of purpose. He cannot control his judgment and his taste. He tires of everything as soon as the novelt vislost.

# An Engineering Feat.

Quite a remarkable piece of engineering is being accomplished on the Harlem Railroad at Yorkville. A substantial archway is being constructed, extending from Eighty-eighth to Ninety-second street and covering an open space which has ly dangerous. The work was prescribed at the time of grant-

## Bleaching and Granulating Sugars,

In No. 4, current volume, we illustrated on the first page a device for purifying and bleaching cane juice. Since then we have received some specimens of the sugar purified by that process which seem to be of very excellent quality, even inferior cane delivering superior juice which granulates easily and makes a good quality of sugar. The process is well worthy attention by those interested in the manufacture of sugar. The address of the inventor was incorrectly given in our description of the illustrations; it should have been Evan Skelly, Plaquemine, Iberville Parish, La.

TORONTO has produced a traction engine for drawing wagons over common roads, and it is said to work well. Brazil also puts in an appearance with a traction engine which runs been the scene of several accidents, and is in itself exceeding. easily on Macadamized roads, dragging a loaded omnibus up a steep hill with ease and speed, and the Emperor uses it for ed as truth, that "success is the real evidence of ability" is ing the charter to the road, and is now being completed in his country excursions from his summer palace at Petropolis.