Examples for the Ladies.

Mr. George W. Nelson, (machinist,) Alleghany City, Pa., says the Wheeler & Wilson Machine in his family has been used for thirteen years without repairs; and he will warrant it for ten years more, and that any Wheeler & Wilson Machine will serve a family for a life-time—an important fact, particularly to girls who make their living by the needle.

Mrs. D. G. Eagerton, Madison, Ohio, has used her Wheeler & Wilson Machine 5 years; sometimes in competition with all kinds of "*woman killing*" machines; would not look at $5000 for it if she could not ge another like it.

Business and Personal.

The Charge for Insertion under this head is One Dollar a Line. If the Notices exceed Four Lines, One Dollar and a Half per Line will be charged.

Notes & Queries.

[We present herewith a series of inquiries embracing a variety of topics of greater or less general interest. The questions are simple, it is true, but we prefer to elicit practical answers from our readers.]

1.—VOLUME OF HYDROGEN.—Will some correspondent inform me how many cubic inches a volume of hydrogen weighing one ounce contains?—W. W.

2.—SCREW CUTTING GEAR.—I wish to fit the slide rest of a small foot lathe for screw cutting. Can the motion be transmitted with sufficient accuracy by means of friction gears?—E. C. J.

3.—GRINDING STEEL TOOLS.—Does grinding edge tools on emery wheels injure the temper?—E. C. J

4.—BLOW PIPE LAMP.—Can any of your readers tell me how to make a portable blow pipe lamp for use with a Berzelius blowpipe?—E. C. J.

5.—NON-EXPANDING LIQUID.—Is there any liquid that will not expand or contract at ordinary temperatures? What is it? And what liquid expands more than any others?—R. L. H.

6.—PAPER FOR TELEGRAPHY.—How is the coloring band, that is used in House's telegraphic printing apparatus, made? How can paper be prepared, so that a current of electricity in passing through it will leave a black mark or stain?—R. I. H.

7.—CEMENT FOR ALABASTER.—Can any one give me a recipe for mending alabaster? I have a vase that is broken where the cup joins the pedestal; it is not quite an inch across.—B.

8.—SPECIFIC GRAVITY OF LINSEED OIL.—Can any of the readers of the SCIENTIFIC AMERICAN give me the specific gravity of linseed oil made from American seed, and of oil made from East India seed; and also the specific gravity of cotton seed oil?—C. O.

9.—CLEARING DUST FROM MACHINE SHOPS.—I have a room for cleaning castings, eighteen feet square. The dust from the iron tumblers permeates the machine shop adjoining. Is there any method of forcing the dust out of the room into the open air?—L. B.

10.—WILD TEA.—Will Mr. J. B. Williams, who mentions this herb (on page 5, current volume) as a cure for cancer, give such an explanation as will enable me to obtain it, as I cannot find any one who knows of such a plant?—J. W. McA

11.—SPEED OF CIRCULAR SAW.—I wish to know how many revolutions per minute a 52 inch circular saw should make to cut from 5,000 to 8,000 feet of lumber in ten hours working time; and also how high a speed it would be safe to run such a saw.—D. S. B.

12.—POUNDING OF PISTON.—Can any of your readers tell me what is the trouble with an engine, that thumps or knocks and has done so for some years? By drawing the keys on main rod, I can stop it for a day or so; then it will be as bad as before. There have been some experts looking at it, but they cannot tell how the trouble arises.—W. M. T.

13.—FREEZING WATER IN STEAM ENGINE.—Can water collect and freeze in the cylinder of an engine in cold weather when the engine is still, so to burst the cylinder, when the cylinder cocks are open and the throttle valve leaking slightly? Mine was burst before or at starting on a cold morning, both followers being burst, and the rings broken square across.—A. G. L.

14.—PLATINUM SPONGE LAMPS.—Can any one tell me how to make the platinum sponge more substantial and durable than it is in its present form?—C. C. W.

15.—POLISHING WOOD.—There have lately appeared in your paper some recipes for varnish and polish for work in the lathe, in which an alcoholic solution of sandarac is to be mixed with beeswax and made into a paste with turpentine. I have tried this but have not succeeded in mixing the solution with the paste, even when added in very small quantities at a time. Perhaps the parties who gave the recipes will kindly state how the difficulty is to be got over.—C. M.

16.—QUESTION IN MECHANICS.—If a pair of fluted feed rollers are so arranged as to feed blocks horizontally into a straight box, one directly upon the other, and if the first block be opposed in its progress by a force of say 50 pounds: after that say 100 blocks had passed through the rollers into the box, the opposing force remaining continually on the first block, would the hundredth block bear more strongly upon the ninety-ninth than the second upon the first, leaving out of the question the power required to overcome the friction of the blocks in passing through the box, were the 50 pounds opposing force removed? The principle is in use in several branches of mechanics. Can some one demonstrate it scientifically?—H. W. U., of Wis.

17.—SLIDE VALVE QUESTIONS.—Some weeks ago I was called upon to put in repair a steam engine and some other machinery for a saw, grist, and planing mill. I found the engine (with a ten inch cylinder and two feet stroke) well made but badly run. The cylinder was at least three-sixteenths of an inch out of line with the slides and crank, and the slide valve and the eccentric were set so as to give nine sixteenths of an inch lead on that end on the engine that threw the saw sash up, and five sixteenths of an inch lead on the other end, and this was done by a man who had run an engine for twelve years and claimed to know his business to perfection. I set the eccentric so as to give as near three thirty-seconds of an inch lead as I could measure, putting the key in its original seat on the shaft, and making the lead alike at each end of the cylinder. The engineer thought hardly of me for undoing all his work. The slide valve had a great deal of lap over the ports—very nearly one and one quarter inches. It commenced to open the exhaust about one eighth of an inch before it opened the steam port on the opposite end, which I think is wrong. Am I right, or not? The owner of the mill complained of being slaughtered in the most wicked way for six months; is it any wonder? Yet he won't take the SCIENTIFIC AMERICAN.—C. G.

Answers to Correspondents.

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 must be by volume and page.

H. H. B, of Ga.—Nelson Goodyear's hard rubber patent will expire May 4th, 1872.

L. D. C., of S. C.—The grooves in rifled guns serve only to direct, not to impel, projectiles. They give no increased initial velocity, but rather decrease it.

L. A. S., of Pa.—We advise setting your engine close to the boiler and transmitting the power through the distance named—300 feet, by a telodynamic cable. However, you may carry the steam the distance named, by fitting the pipe properly, and without very great loss or inconvenience.

W. R. S., of O.—To make a superior red ink for our office we do as follows; Dissolve pure carmine in aqua ammonia, enough to make a thick paste; let stand one day and then add water until the desired shade is produced.

W. A. W., of N. C.—The description of meerschaum as a hydrated silicate of magnesia is correct. The name *meerschaum* (sea foam) was given to the material, as a figurative appellation, on account of its white color and lightness.

WATERPROOFING BOOTS.—C. B. should take; India rubber, 2 drams; mineral naphtha, 2 ounces; asphaltum, ½ ounce; ivory or lamp black, ½ ounce; spirit of turpentine, 1 ounce; and dissolve the rubber in the naphtha, mix the two solutions, add the black, and mix thoroughly.—G. L., of Mich.

B. F. S., of O.—We think an excellent foundation for an overshot water wheel might be made of concrete, under the circumstances you name.

F. E., of Mass.—If your teeth are so irregular as to be unsightly, a good dentist will be able to remedy, at least in great measure that defect. Seek the advice of such a one and follow it to the letter.

HARDENING SCREWS.—If E. N. C. will fuse together, in an iron vessel or crucible, one part of prussiate of potash and ten parts of common salt, and allow his screws to remain in the liquid thirty minutes, and then put them in cold water, they will be case hardened. Don't put a wet tongue in the liquid.—W. B. C., of Cal.

G. E. G., of N. Y.—Your suggestion for an improvement on Calle's hydro-aero-dynamic wheel is worthless. No power would be gained by the application proposed.

C., of Ont.—The hydrostatic pressure, on the interior of a vessel having a pipe inserted into which water is poured, is as the entire internal surface of the vessel, and not as its cross section.

BRONZE PAINT.—In your query column of January 13, R. S. B. wishes a recipe for bronze paint. I submit one, which, I feel sure, will answer his purpose: Ivory black one ounce; chrome yellow, one ounce; chrome green, two pounds; mix with raw linseed oil and a little Japan varnish to dry the paint.—W. J. D., of N. Y.

TELEGRAPH GROUND WIRE.—No. 4, page 42, current volume. A plate is better than a mass of metal, as it exposes more surface. A piece of old tin roofing answers excellently. It should be buried to a depth sufficient to insure its being always surrounded by damp or wet earth. This depth will vary according to the nature of the soil. A piece of sheet metal four or five feet square is ordinarily large enough. A short telegraph line requires a greater superficial area of ground connection than a long one. A gas or water pipe makes the best ground connection. F. L. P., of N. Y.

INDELIBLE INK.—To C. T. H.: Take nitrate of silver, 11 grains, dissolve it in 30 grains aqua ammonia. Dissolve 20 grains of gum arabic in 85 grains (2½ teaspoons) of rain water. When the gum arabic is dissolved, put in the same vial also 22 grains of carbonate of soda; when all are dissolved, mix the contents of both vials together, and place the vial containing the mixture in a basin of water and boil several minutes, or until a black compound is the result. When cold it is ready for use. Have the goods starched and ironed and perfectly dry, then write with a quill pen.—J. H., of Mass.

THISTLES.—To J. H. M., query No. 5, January 6, 1872: All thistles, except the Canada thistle, are biennial; growing from seed one year, and blossoming the next, they mature their seed and die. Remedy: Never let a thistle mature. If all the seed, from your own ground, as well as from your neighbors' and the surrounding country, grows, treat it thus, and you will be rid of thistles, that is, of biennials. If you have Canada thistles, cut them in June and August, at the time the stock is hollow; if it rains and fills the stock, the root will rot.—A. K. J., of O.

INDELIBLE INK.—Let C. T. H. take: Nitrate of silver, three drams, and strong liquid ammonia, two drams; and then make a separate solution of half a dram of metallic copper in a sufficient quantity of nitric acid, and add liquid ammonia to the point of saturation. For a third solution, take three grains of pure indigo and reduce to fine powder in one ounce distilled water; then add six grains pure carbon and one ounce pulverized gum acacia. Mix the whole together, and add a sufficient quantity of ammonia to form a clear mixture. And when a gentle heat has been applied, the fluid will be ready for use.—G. L., of Mich.

UTILIZING HUSKS.—To L. S. P.: The most recent method of utilizing them is by preparing them for use in beds, by a removal of the stems and splitting of the husk. They are being introduced in our large cities as a substitute for straw in the filling of loose beds and the manufacture of mattresses, and are greatly liked on account of their toughness, elasticity, and durability. The time is not far distant when straw will be discarded entirely and husks will take its place. A firm in Chicago is purchasing large quantities of husks in the country, and shipping them to the city, where they prepare them by machinery for sale to wholesale houses and manufacturers of bedding. The business is a growing one, and is remunerative to the farmer and all else concerned.—W. T.

BELTS IN WET WEATHER.—S. S. F., January 1, answers a query in regard to leather belting by saying that they are always tightest in wet weather. I run machinery, in a planing mill, and I find that the belts which will slip in wet weather are tight enough in dry weather.—A. G. L., of O.

INDELIBLE INK.—Let C. T. H., query 9, January 13, take one dram of the fused nitrate of silver and ten grains of sap green, dissolved in one ounce of water, and add to it half a dram of gum arabic. This ink must be kept in a bottle which is covered with black paper to exclude the light, which affects it. (This bottle must be marked No. 2). Then prepare 2½ drams of best powdered soda, and 2½ drams of gum, dissolved in two ounces of distilled water. (This fluid should be marked No. 1). When wanted for marking, take No. 1 fluid and wet a place as large as required for the name and dry with a smooth iron; then write with a quill pen and dry in the sun or with fire. The writing gets darker by time.—P. K., of N. Y.

BRONZE PAINT.—If R. S. B., No. 11, January 13, wants a real bronze color, let him galvanize the iron and brighten it; then prepare, with a proper brush, powder bronze with thin varnish on a glass plate; and rub well into the brush to a medium consistence: then go on and brush it on the iron. When properly coated, take another brush and a piece of chamois leather; rub off some of the elevated places according to taste, then varnish over with bronze varnish. Bronze paint is prepared of powder bronze and varnish, rubbed in a mill. When used, make the iron first black, using lamp black and water with a brush; then warm the iron, and brush the paint on with a camel's hair brush while hot.—P. K. of N. Y.

SUBSTITUTE FOR FRICTION MATCHES.—In your column of queries, I find J. H. T. inquiring if the hydrogen lamp could be made to take the place of friction matches. I use no matches in my house, but take my light from this lamp by the use of tapers made of wood. It costs me twenty-five cents a year for the material to run the lamp; the only fault I find with it is that the sponge is too frail to use in public rooms, like drug or cigar stores, or other places where an instant and cheap light is wanted. If the sponge could be made more solid, so that it would stand a little force, it would be an improvement. Sometimes there are persons who are not satisfied with getting a light, but want to punch the sponge to see what it is; and the consequence is, they break it or jar the wire. If this sponge could be made and hung by a wire in the thimble of the lamp, so that it would have a chance to swing and to keep solid, these lamps could be used in a great many places; for they are cheap in use and a light can be obtained quickly.—C. C. W of Ill.

TREATMENT OF GRAPE JUICE.—In your issue of December 2, 1871, your correspondent, M. T. M., asks how he can make good wine from his grape juice which he now has in casks. In answer, I can give him a process, lately discovered in France, and now largely practiced for improving the quality and making the most ordinary kinds into high class wines. The process consists in plunging, into the vat containing the wine, two plates of platinum or of silver, having attached to them two wires of the same metal, which are connected with the poles of an electric battery. The Bunsen and Daniell's batteries are much used here for this purpose. The time necessary to transform a low grade wine to one of an agreeable and superior quality is from two to three weeks, with the battery continually working. By this method, wines which were considered only fit for making vinegar are changed to such an extent that they are used as good, and in some cases superior, table wines. If desired, at some future time I will give the history of this discovery.—AMATEUR, of Paris, France.

TINNING SMALL ARTICLES.—I notice an inquiry, about tinning small articles, in a late number of the SCIENTIFIC AMERICAN. I have used the following process with success, though there is a better for use on a large scale, but it is a trade secret: Clean the articles with sulphuric acid diluted with ten parts of water. A little heat and stirring will save acid and time. Wash the acid off with water, and dip the articles, with a perforated ladle, from the water into a kettle containing melted tallow. Place over the fire, and boil out the water. Be careful not to scorch the tallow, or it will boil over every time it is used. Have your tin melted with a little tallow on it, and keep it at such a temperature that the tallow will not burn. From the first kettle, dip the articles into this. After a few minutes, the tin will take hold, when the articles can be taken out and cooled. If they are very small, they may be dipped out and thrown into a chute. This should be lined with sheet iron, and have one or two jumps to knock them apart and jolt off the surplus metal. If there is room, have a large floor for them to scatter over, so as not to solder together. If there is not room for this, they may fall into a tub, which should have a stream of water, flowing in at one side and out over the opposite edge, to carry off the tallow and flakes of tin which float on the surface. With a little experience, this process can be made very easy, rapid, and successful.—W. W., of O.

W. H. B., of Ill.—According to the United States statute, the register tunnage of a vessel is her entire internal capacity in cubic feet divided by 100. Full information on this subject, relating to all sorts of vessels, is given in Meade's treatise on "Naval Construction."

HYDRAULIC RAM.—If a hydraulic ram has ten feet head and four inch feed pipe, will it raise a four inch column of water above its head, that is, more than ten feet?—J. S. F., of Ill. Answer: The only difference, that the size of the cross section of the column of water raised by a hydraulic ram can make (provided the dimensions of the ram be properly adjusted), is in the velocity at which the column is raised.

P. H. O., of Me., sends us some peculiar crystals, deposited from exhaust steam, and asks what they are. Answer: The analysis of the crystals shows S O3 for the acid and Fe O, Zn O, and Na2 O for bases, in other words, a sulphate of iron, zinc, and soda. It is a multiple salt of a species of alum. Of soda, there is but a trace. The black substance found in the other drip pan is mainly sulphate of zinc (white vitriol) colored by coal tar. The multiple salt is a curious compound, and is noticed in Thomson's "Chemistry."

J. M. E., of Tenn.—There is such an article as wood hanging for covering walls, in place of paper hangings. We do not know its merits or relative cost.

HORSE POWER.—Answer to query No. 7, January 13. After using a horse power machine for three years, I find that a horse would do more work and not get dizzy in a circle of 22 feet diameter. A less diameter causes dizziness and soreness of shoulder, which can be obviated by decreasing the length of inside of trace to equalize the draft on collar, so as to conform to the position of the horse in walking.—A. V. S., of O.

J. H. F., of N. Y.—Air in a cylinder eight inches long and four inches in diameter, and submitted to a pressure of 200 pounds, would occupy only six tenths of an inch in length of the cylinder. The volumes of all gases diminish directly as the pressures to which they are subjected. Compressed so as to occupy one fourth of the cylinder, the air will give sixty pounds pressure above that of the atmosphere.

Declined.

Communications upon the following subjects have been received and examined by the Editor, but their publication is respectfully declined:

ATLANTIC AND GREAT WESTERN CANAL.—J. A. L.
BOILER EXPLOSIONS.—H. W.
ELECTRO-MOTORS.—J. C.
LUNG EXERCISE.—E. S.
TO SMOKE OR NOT TO SMOKE.—T. W.—E. M. D.
ANSWERS TO CORRESPONDENTS.—I.—A. V. M.—A. G.—A. H.—S. C.
QUERIES.—J. T.—A. T. B. D.—P. E. McD.—C. E. O.—M. H. B.

Recent American and Foreign Patents.

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

COFFEE ROASTER.—Charles C. Butt, of Duck Hill, Miss.—This invention has for its object to furnish a simple, convenient, and reliable coffee roaster, so constructed as to adapt it for use upon a hearth with a fireplace fire, or with a stove, as may be desired, and which will roast the coffee evenly and in such a way as not to allow the aroma to be driven off and be lost; and it consists in the construction and combination of an outer cylinder and an inner corrugated cylinder, in combination with each other for receiving and holding the coffee while being roasted, and a combination of the cylinders named with a crank shaft, standards (whether detachable or attached to a base frame), connecting rod, crank, treadle shaft, and base frame.

COMBINED AXLE BOX, SAND BAND, AND CASING FOR CARRIAGE WHEEL HUB.—Michael McNalley, of Houston, Texas.—This invention has for its object to furnish an improved cast iron axle box, sand band, and casing to be applied to the wooden hubs of carriage wheels, simple in construction, easily applied, neat in appearance, and strong and effective in use. Through the center of the wooden hub passes the axle box that receives the axle. The rear end of the box is made with a shoulder or enlargement to receive the collar or shoulder of the axle, and is cast solid with the inner end of the part of the casing, so formed as to fit upon the inner end of the wooden hub. The sand band is cast solid upon the inner part of the casing. The outer part of the casing fits upon the outer end of the wooden hub. The outer end of the outer part of the casing is formed with a projecting flange or band to cover and protect the projecting end of the axle. The outer end of the axle box projects through a hole in the end of the outer part of the casing, and has a screw thread cut upon it to receive a nut which locks the parts to each other and to the wooden hub. The parts of the casing are further secured to the hub by rivets or screws passing through the ends of the said parts and through the wooden hub. The adjacent edges of the parts of the casing meet at the middle part of the hub. Sockets are formed upon the parts of the casing to receive the inner ends of the spokes, the tenons of the spokes entering mortises in the wooden hub in the ordinary manner. The spoke sockets are formed partly upon the inner part and partly upon the outer part of the casing, the flanges that form them extending continuously around the parts, and being made with offsets or ribs to bear against each other between the spokes and thus more strongly support the sides of the spokes and prevent them from breaking off at the shoulder of the tenons.

NUT LOCK.—Edwin H. Dooley, New York city.—This is a new and effective but very simple nut lock, to be applied to railroad rails and other purposes; and consists in the use of a locking pin which enters a groove along the whole length of the bolt, and has a sharp edge or edges near one end for cutting the thread of the nut, while the other end is bent over the head of the bolt. In this manner an absolute lock is produced which cannot possibly work loose, and therefore greatly insures the safety of the bolts. The pin can be readily removed, when desired, by bending its inner end straight, or cutting it off, and then driving out the pin to enable the nut to be unscrewed.

HAND CAR.—Jairus Collins Fairview Ohio, assignor to himself and John D. Saltsgaves, same place.—This is a new arrangement of hand car which is propelled in either direction by the exertion of the persons occupying it. The invention consists in combining an operating lever with a double pair of pawls, which engage in a ratchet rail secured to the ground parallel to the track. The propulsion is effected by the alternate contact of the ends of the pawls with the ratchet teeth of the bars on the track.

MACHINE FOR FINISHING HORSE SHOE NAILS.—Harry A. Wills, Vergennes, assignor to Julia A. Wills, same place, and Lucy S. Kingsland, Burlington, Vt.—This invention consists in certain improvements in a machine for cold rolling horse shoe nails, after they have been formed, to harden and finish them, in which the guide of a feeding screw, that is used to conduct the nails to the pusher, by which they are delivered to the dies, is arranged to change the nails from a vertical to a horizontal position, so that they can be delivered to horizontal dies. In these dies the nails are held by a movable disk or pin clamping them by the narrow sides between it and a fixed die over a bed former, and rolled on the upper side by a roller die in the end of a reciprocating bar, which is governed by a roller guide and former above the bed die. A holder is hung above the bed die and arranged to come over the head of the nail as soon as the roller die passes therefrom toward the point, and prevents the nail from bending upward by the action of the roller. The clamping dies open when the roller die passes off the point of the nail, the head holder recedes, and a pusher discharges the rolled nail.

RATCHET DRILLS.—John J. Switzer, of Williamsburg, N. Y.—In this invention a ratchet head is formed in the body of a tube, by depressions instead of the usual method of forming projecting teeth. It is stronger and protects the bearing surface of each tooth at the sides, similar to a flanged ratchet wheel, but is much cheaper to make than the same. The handle and eye are formed in one piece, and a chamber is provided in the handle for the pawl and spring, also a more economical and simple plan than any hitherto in use. A sliding feed center, threaded and longitudinally grooved, is also combined with a swiveled nut, and the tube above described.

TOY.—John W. Beatty, of Petroleum Center, Pa.—This invention relates to apparatus for the amusement of the young, representing in miniature the machinery employed in boring for oil. The engine house, the derrick or tower by means of which the drill is raised, the pulley over which the hoisting rope passes, one end of the rope being attached to the drill and the other end to the windlass, the stand for the working beam, and the working beam, the drill shaft attached to one end of the working beam, and the beam operated by a crank, to which the other end is connected by the pitman, the belt from the engine pulley that revolves the band wheel, are all shown in motion, being driven by clock work as a motive power in the engine house. Pen holders are formed on the side of the derrick, and an inkstand is placed on the platform. A flange around the platform makes a safe receptacle of the latter, for pens, rubber, or other articles.

COVER FOR WATCH FRAME.—Abel Combs, of Burlingame, Kan.—This invention consists in a hinged plate for excluding dust; not arranged as a common hinged cap to a case, and intended in place of a common cover, but which constitutes a part of the watch movement. Its especial object is to exclude air, light and dust from the oil in the pivot holes of the plates. It also serves to carry the pivot or arbor of the winding barrel, which can be let into this plate and entirely through the under plate, without exposure to the breath when the cap of the case is lifted and the watch being examined. With this plate the movement can be looked at by inserting a glass over the balance. This dust plate is more particularly intended for a three quarter plate movement, and, it is claimed, combines all of its advantages, with the added advantage of protecting the balance and the whole movement. The plate is hinged to permit the removal of the escapement exposing the whole machinery.

TELEGRAPH PRINTING APPARATUS.—Henry Van Hoevenbergh, of New York city.—This invention has for its object to produce a simple and convenient mechanism for reversing the motion of the type wheel of a telegraph printing instrument. It is intended for use more particularly on an instrument for telegraphing stock quotations, etc., where it is desirable to have a reversible type wheel, and thereby avoid frequent necessity of making almost complete revolutions to reach types that may be brought to action by a short back movement. The invention consists in a new revolving gear actuated by a separate current through an independent wire, and in a new double pawl mechanism for actuating the type wheel shaft. The invention also consists in the application to the latter of a stop whereby its motion is arrested, if and as long as it is not in concert with the other instruments that are operated simultaneously by the same keys.

MACHINE FOR TAPPING GAS AND WATER MAINS.—George Shelley of Easton, Pa.—This invention consists of a drill case for clamping upon the main, divided vertically in two parts for separating, to be detached from the pipe when it is connected to the main which case is provided with a divided flexible packing ring in an annular groove in the bottom; a valve chamber and a check valve, to be opened by the drill when it is inserted, and closed by the water when said drill is withdrawn after boring and tapping the main, and then opened again when the pipe is put in. A packing ring above the check valve prevents the escape of the water when the valve is open, and the valve chamber is provided with a cock to be opened when required to let the cuttings or chips be washed out, so that they will not obstruct the closing of the valve.

BOOT CLAMP FOR BASE BALL PLAYERS.—Edward S. Ellis, of Trenton, N. J.—This invention consists of an adjustable clamp, having points or spikes projecting from the bottom thereof, to be applied to the sole of the boot for the purpose of preventing slipping. It is claimed these clamps are fastened to the boots of base ball and cricket players more securely, in a shorter time, and can be removed more easily, than by any other contrivance now in use.

SASH HOLDER.—George W. Warren, of Bristol, Ind.—This invention relates to the class of sash locks in which catches are employed to secure the sash to a T-headed nail or stud driven into the sill. It consists in an arrangement of a hook spring lever in the sill in connection with a treadle located in the wall and projecting through the mop board. A key hole furnishes a means of access to a dwelling, independent of the ordinary entrance—a convenience to which recourse is quite often necessary.

WALKING PLANTER.—Mills W. Stephenson, of Pickensville, Ala.—This invention has for its object to furnish a simple, convenient, effective, and reliable machine for planting corn, cotton, peas, and other seeds, and for distributing guano and other fine fertilizers. In this machine the reciprocating movement of the lower parts of the sides of the hopper causes the seeds or fertilizer to pass out regularly and uniformly. When desired the seed, such as corn, peas, etc., may be dropped in hills by lowering movable boards until the discharge opening is closed. A hole in the lower inside edge of the movable board, while inside the hopper, gathers the seed, and on passing out deposits the same. The rollers from which this motion is obtained being one foot in diameter, the seed is dropped every three feet. By sinking a hole on the opposite movable board, the seed will be deposited half this distance or every eighteen inches, and by sinking holes in the opposite ends of the boards the seed will be dropped every nine inches. The size of these holes will govern the quantity dropped. These holes are easily closed by inserting cork stoppers. But this is necessary only when it is desired to increase the distance in the dropping, the holes not being in the way when planting in drills.

IRONING MACHINE.—Charles C. Thomas, of Natchez, Miss.—This invention has for its object to furnish an improved machine for ironing clothes and other cloths. It consists in the construction and combination of the various parts, whereby, through a rack pinion and winch the smoothing irons are actuated.

ELECTROMAGNETIC ENGINE.—Henry S. Daggett, of Lafayette, Ind.—This invention relates to a new arrangement of stationary magnets and vibrating conductors, and to a new combination of the same with a sliding piston rod and vibrating link movement, whereby a complete electric engine is produced, imparting a reciprocating motion to the piston and other suitable action to the mechanism connected therewith. Magnets arranged in rows and connected with wires and pendent chains, a piston provided with a swivel lever which moves under the chains and thereby produces successive connections with the several rows of magnets, stops affixed to the frame for swinging the lever at the end of every stroke, and thereby reversing the motion of the engine, and an electric engine, consisting of frame rack, magnets, wires, chains, piston, lever, and stops, all combined to operate as described, are the features upon which a patent has been obtained.

DEVICE FOR UTILIZING POWER AT RAILWAY STATIONS.—William J. Plecker, of Bushnell, Ill.—This invention relates to an improvement in securing, storing up, and utilizing the power of passing locomotives. It consists in a mechanism or apparatus by means of which power for driving a pump, sawing wood, or for other purposes, may be stored up by a locomotive in passing a station or any locality wherever the apparatus may be located. The inventor does not limit or confine himself to any particular apparatus or mechanism for thus obtaining power from passing trains, as the various parts of the apparatus may be varied in many ways without departing from the invention.

CAR COUPLING.—Churchill Eastin, of Louisville, Ky.—This is a self coupling apparatus in which the coupling pin is suspended from a holder upon the top of the buffer, and is moved backward by a lever to trip or release the link by lifting the lower end above the part of the buffer, behind which it is locked when in the working position, the said holder being moved up an inclined plane to lift the pin as it moves back. Two tripping levers are used for uncoupling, one to be used by a person standing on the ground and the other when on the car.

MICA LAMP CHIMNEY.—George M. Bull, of New Baltimore, N. Y.—This invention has for its object to furnish an improved lamp chimney constructed of mica.

SPINNING MULES.—William Lees, Coatesville, Pa.—This invention has for its object to prevent drawing rolls of a mule delivering, to the spindle of the same, more sliver than the latter can properly spin at any one stretch, the invention consisting in a mechanism whereby, when the proper length of sliver has been delivered, the spool shaft is stopped, and whereby it is started again during the next run of the carriage inward.

CONSTRUCTION OF WALLS FOR BUILDINGS AND VENTILATION OF THE LATTER.—William L. Stauffer, Allentown, Pa.—This invention in architecture consists in a peculiar relative form of facing, binding, and filling brick, to form a hollow wall through which a circulation of air may be kept therein, and in all the rooms of a building.

COTTON PRESS.—William C. Banks, Como Depot, Miss.—This invention relates to a press having a wooden top piece or cap hinged at one side, through which cap passes the platen screw, said cap being, by means of the hinges, made capable of turning back to one side, so as to remove the platen from the top of the box, and leave a clear space for the insertion of a fresh charge, the cap aforesaid being kept in place, when turned down on the box, by means of bales and loops.

COTTON PRESS.—William W. Anderson, of Wartrace, Tenn.—This invention consists of a system of pulleys and a cord at each end of the follower for working it, the said cords, after passing over the pulleys, being run over a guide pulley to a drum for winding them up, and the drum being operated by a cord, pulley, and a capstan, all arranged for obtaining great leverage, whereby the bale may be pressed with great force, and the work accomplished by one person.

FIRE PLACE.—Miles Moore, of Bartlett, Tenn.—This invention has for its object to furnish an improved fire place heater, which may be taken down and put up when required, and will enable the heated air to be discharged from the hot air chamber in any desired direction. It consists in a construction and combination of parts whereby the desired objects are attained, and fire place heaters thus constructed may be connected with single flue chimneys, or with double chimneys, or with stack chimneys, as may be required.

GATE.—Allen Gaskill, of Neoga, Ill.—The horizontal bars are all pivoted to the vertical bars, so that the swinging end may be raised or lowered; and the braces are pivoted to the gate at the upper ends, while the lower ends are jointed to the ends of levers pivoted to the second horizontal bar from the bottom. These levers extend from the pivot to the top of the gate at the front end, where they are secured by a bridle or yoke, when the gate is closed and latched. By swinging the levers backward, the swinging end of the gate will be lifted up, raising the latches out of the notches in the post, so that the gate may be opened. The said levers will hold the gate in this position until moved back again by hand, so that the latches will be in position to enter the catches again when the gate closes, after which it will be locked by turning the levers up to the vertical bars, and securing them by the yoke.

PRUNING SHEARS.—Samuel J. Beigh and Eli F. Beard, of Republic, Ohio.—A semicircular jaw is formed on the end of a long shank, the two forming a single piece, while the latter is attached to the staff by clips, so that it will readily slide up and down on the staff. The cutting blade is also of a semicircular form, the outer circle forming the cutting edge with the inner circle of the jaw. The jaw and the blade are pivoted together, and the two work together similar to the blades of a common shears. To enable them to thus work, the blade is provided with a shank which is hinged to a rod, the rod being hinged to the end of the staff. A wire is attached to the end of the shank with a loop or ring at its end, by which the jaw is drawn down and pushed up in the operation of cutting. The shank and the rod form what may be called a "grasshopper" connection, the connection being operated entirely by sliding the long shank of the jaw upon the staff. In cutting, the blade acts as a lever whose fulcrum is the joint pivot. The blade, owing to the circular form of the cutting edges, gives the twig to be cut a drawing stroke, thereby greatly lessening the power required in giving a cut square across the grain of the wood.

SPRING BED BOTTOM.—Sylvester Logan, of Greenville, Pa.—This invention consists of india rubber springs let into the ends of spring bars of wood, extending nearly from end to end of the bedstead, with hooks connecting the bars with eyebolts or other connection in the ends of the bedstead, the said hooks engaging the bars by said springs in such manner that there is an endwise or longitudinal as well as a vertical springing action of the bottom, and so as to form a cheap and desirable means of connecting the bars to the bedstead.

PROPULSION OF VESSELS.—Thomas B. Raymond, of Winona, Mich.—This invention consists in applying, to a stationary tube surrounding the propeller for preventing lateral displacement, diametrical plates to receive the water at the rear from the propeller and prevent it from whirling around in said tube. Stationary tubes surrounding the wheel, and likewise spiral vanes, have been used, but they have been found impracticable, on account of the whirling of the water while subject to the screw and separated from the surrounding water; which, in this improvement, the inventor proposes to overcome in great measure, if not entirely, by the employment of these vanes behind the propeller, and thereby to render the employment of the tube a success.

SCREENING APPARATUS.—David Kahnweiler, of New York city.—By this machine it is claimed that hulled or cracked seed is cleaned or separated from the hulls, fibers, etc., connected with it as it leaves the hulling machine in the most effectual manner, when heretofore a blast of air has been applied, which blast was the occasion of much loss as the fine meal or dust was expelled or blown away thereby. A screen box with a chamber and apertures therein arranged, and a combination of an agitator, an inclined and curved screen, with the chamber having apertures, are the features of the invention on which a patent has been obtained.

SOIL PULVERIZER.—David Osborn, of Paoli, Ind.—This invention relates to a new agricultural machine, intended to combine the functions of the harrow and land roller—that is, to pulverize and level the soil. It is intended for use, principally subsequent to sowing, to cut the clods and cover the grains. The invention consists in the general new arrangement of a sled, adjustable pulverizing tools, and graduated ground coverers.