

AUTOMATIC CAR COUPLING.—Willard E. Bush, Damacons, Pa.—This invention consists in attaching spring catches to the coupling pin, to prevent its displacement by the motion of the cars, and in the form of the ends of the escaping link, and in the provision made for holding the link in place.

APPARATUS FOR BOILING EGGS.—Ira Dimock, Florence, Mass.—This invention consists, in general terms, of a chamber forming part of a stand or basket for holding eggs, to be immersed in boiling water. The chamber contains water, which becoming expanded by heat, actuates a rod communicating with bell mechanism, whereby the bell is sounded when the water has acquired a certain predetermined temperature. The chamber is inclosed by another, and the separating space between the two chambers contains air or other media to retard the transmission of heat to the water within the inner chamber, and thus allow sufficient time for the boiling process.

WEEDING AND SCUFFLING HOE.—Lewis King, Oriskany Falls, N. Y.—This invention consists in forming the hoe and shank in one continuous piece, the shank being bent and flattened to form a blade which, from its position at right angles to the handle and parallel with the ground, as ordinarily held, operates in a superior manner as a scuffling hoe.

HORSE RAKE.—Nicholas Selby, Flora, Ill.—This invention is designed as an improvement upon a rake patented by J. C. and E. D. Turner, of Bridgeport, Ill., in August of 1867. The improvement consists in providing a balanced or sulky frame, which is pivoted on two draft wheels and provided with a hinged frame which supports the revolving rake.

WASHING MACHINE.—G. A. Dabney, San Jose, Cal.—This invention has for its object to furnish an improved machine for washing clothes, which shall be simple in construction and effective in operation, doing its work rapidly and thoroughly.

WEATHER BOARD GAGE.—Worden E. Stoddard, Fort Edward, N. Y.—This invention has for its object to improve the construction of the weather board gage patented by the same inventor May 17, 1859, and numbered 124,066.

BAG TIE.—J. W. Bates, Glencoe, Minn.—This invention has for its object to furnish an improved device for tying bags, sacks, sheaves of grain, laths, pickets, and other such articles put up in bundles, which shall be simple in construction, inexpensive, easily and quickly attached and detached, and which will hold the bag or bundle securely tied.

BOOK FOR BOOKKEEPING.—John H. Gleim, St. Louis, Mo.—This invention has for its object to diminish the number of books required in conducting a business, whether wholesale, retail, or commission, and at the same time to combine and arrange the columns of the journal as to require less labor in making the entries, and generally simplifying the record of the business.

MACHINE FOR WEIGHING AND TALLYING GRAIN.—F. S. McWhorter, St. George's, Del.—This invention relates to the weighing and tallying of grain automatically. It consists in general terms of a belt of elevating buckets operating within a box or casing, whereby the grain is elevated and passed over into a vertical chute in which is arranged a sleeve which is provided with a device for choking the same to discontinue the flow or grain through it. The device discharges the grain into a rack held on a sack holder, which being connected with a steelyard properly weighted, the movement of the steelyard causes the choking of the sleeve by being connected with the choking device. Other devices perfect the operation of the whole, rendering it a simple and effective device, which is applicable to the discharge of grain from or into box cars, canal boats, vessels, and grain lofts.

CHAIR.—H. Buchter, Louisville, Ky.—This invention has for its object to furnish an improvement in the mode of securing the ends of the canes in forming the seats of cane seated chairs, by means of which the canes may be placed close together, so as to form a close seat, while at the same time the seats will last much longer and may be much more quickly formed than when made in the ordinary manner.

WROUGHT IRON AND STEEL COLUMNS.—George Walters and Thomas Shaffer, Phoenixville, Pa.—This invention has for its object to furnish an improved iron or steel column or shaft for use in the construction of buildings, bridges, piers, or stie work, compression chords, etc., which shall be simple in construction, strong, and solid, and which may be manufactured at a less expense than columns or shafts constructed in the usual manner.

CORN SHELLING MACHINE.—Joshua S. Rackham, Waterport, N. Y.—This invention consists in a vertical cylindrical shell made in sections, which are divided into segments hinged at one end, the other being allowed to swing outwardly against springs, which constantly tend to maintain them in a concentric position. A vertical cylinder is provided within the said shell, on an axis, and provided with teeth which act in conjunction with corresponding teeth upon the interior of the shell. The swinging segmental sections are designed to yield to the different sizes of the ears to be shelled. A screen and fan blower are also provided for cleaning the corn as it passes through the machine.

COLLAR AND CRAVAT FASTENER.—Emanuel Rau, New York city.—This invention relates to a new instrument for connecting a cravat, and the ends of a paper or other collar with the neckband of a shirt. The invention consists in the use of a pin, with a head on one end, and a projecting breastpin, all combined in such manner that the aforesaid result can most readily be obtained.

MOWING AND REAPING MACHINE.—H. Howe, Oneota, N. Y.—This invention consists in hanging on each end of the counter shaft a loose pinion, each pinion being connected with the counter shaft by means of a ratchet spring clutch. The pinion on the left hand side is smaller than the other, and it will, as it meshes into internal gear of the left hand driving wheel carry the countershaft round while the other pinion will remain idle, not being able to revolve with the counter shaft. The strain of the whole machine is thus thrown upon the left hand side and consequently taken away from the cutting side of the machine.

METHOD FOR DESTROYING CATERPILLARS.—H. A. Graef, Brooklyn, N. Y.—The object of this invention is to devise a means for destroying and exterminating the caterpillars, and more particularly the measur. worms (ermos subs gnarata), by which a great number of trees and other plants are injured. The invention consists in the application of diluted chloride of lime, which, when applied to these insects, will instantly kill them by merely coming in contact with their skins.

LAMP BURNER.—W. W. Jacobs, Hagerstown, Md.—This invention relates to an improvement on a lamp burner, for which letters patent were granted and dated Nov. 5, 1867. This burner is intended for burning oil without a chimney, by generating gas by the heat of the tube.

METHOD OF GENERATING STEAM.—Frank M. Horning, East Pike, N. Y.—The object of this invention is to utilize all, or nearly all, the heat produced from fuel in the generation of steam, and it consists in forcing the gaseous products of combustion, separated from the ashes, into and through the water in the boiler.

SOFA BEDSTEAD.—B. L. Southack, New York city.—This invention relates to a new sofa bedstead, which is provided with a folding back, hinged to a sliding seat, the back, when turned up, resting against the back edge of the arm rests or head boards of the same, so as to be in a proper position. The invention consists in such an arrangement of all parts, that the folding sofa back, which is hinged to the sliding seat, and which forms, together with the seat, the bottom will, when turned up, bear or rest against the back edge of the arm supports or headboards, to which it may be secured.

PICK AXES.—Morgan Gale, San Antonio, Mexico.—This invention has for its object to improve the construction of pick axes, so as to make them stronger, more durable, and less likely to become loose upon the handle than when constructed in the ordinary manner.

SAWING MACHINE.—F. M. Schaeffer, Blooming Grove, Kansas.—This invention consists of an improved arrangement of guides for the saw; also, an improved means for adjusting the saw to work either in a horizontal or vertical plane; also, an improved means for holding a log while being sawed to prevent the same from rolling, and also, in an improved means for supporting the block which is being sawed off.

HEAT RADIATOR.—George M. Woodward, New York city.—The object of this invention is to provide a heat radiator of that class in which steam is introduced at the bottom, said steam rising to the top of the heater and de-

scending, so as to escape again from the lower part of the apparatus. The steam, during its passage through the apparatus, heats the metallic or other sides of the same, which heat is radiated into the room or apartment in which the device is set up.

CORN PLANTER.—D. F. Taft, New Bedford, Mass.—This invention relates to a new seed planter, which is provided with a flexible or jointed spout, so that the marking and covering shovels attached to the lower end of the spout, can be easily raised out of the ground, whenever obstructions are in their way, or when the machine is not to be put in operation. The invention also consists in the use of a new device for operating the slide in the seed box, and for throwing the same out of gear.

SAFETY VALVE FOR STEAM BOILERS.—Wm. R. Malone, Mason city, W. Va.—The object of this invention is to provide a means for automatically checking the increase of steam in the boilers, when the desired amount of pressure has been raised, and it consists in providing means for conveying the steam or water which escapes through the safety valve, and the fire for checking it, whereby the increase of steam is checked. It also consists in an improved method of connecting the safety valve to the boiler.

COUNTER SINKS.—P. A. Whitney, Woodstock, Vt.—This invention relates to an improvement in counter sinks or reamers for metal, and consists in the arrangement within a hollow stock of the cutters, which is made of a piece of flat steel between two clamping nose pieces, through which it is fed downward by a feeding screw as it wears away.

BIT STOCK.—Benjamin Darling, Bridgewater, Mass.—The object of this invention is to construct a bit stock so that the shank of the bit or boring auger may be firmly held without the use of springs or screw nuts, and so that the bits or augers may be used without cutting their shanks or filing them in any manner.

BEH HOUSE.—Charles Decker, New Michigan, Ill.—This invention relates to a new and improved bee house, and it consists in the means employed for suspending the comb frames in the house.

MACHINE FOR BENDING OR FOLDING SHEET METAL.—A. W. Whitney and P. A. Whitney, Woodstock, Vt.—This invention relates to a new and improved machine for bending or folding sheet metal designs for the use of tinmiths and other artisans in sheet metal.

WHEELS FOR VEHICLES.—R. J. Bowman, Mansfield, La.—This invention relates to a new and useful improvement in the construction of metallic wheels for vehicles, whereby strength and lightness are obtained with a requisite amount of elasticity to avoid the transmission of jars and concussion to the body of the vehicle and the consequent wear and tear attending the same.

SULKY CULTIVATOR AND SEEDING MACHINE.—Frank A. Hill, Marysville, Cal.—This invention relates to a new and improved sulky cultivator and seeding machine, and it consists in a novel construction and arrangement of parts whereby the rider and driver has perfect control over the implement, both as regards the sowing of the seed and the adjustment of the shares or teeth.

ROTARY CULTIVATOR AND SEEDING MACHINE.—Stephen Mahurin, Clayton, Ill.—This invention relates to a new and improved device for cultivating the earth and sowing seed, and it consists of one or more shafts provided with teeth and having a rotary motion communicated to them by the forward movement of the machine.

BUTTON HOLE CUTTER.—A. J. Lytle, West Union, Ohio.—This invention relates to a new and improved method of constructing button hole cutters, whereby the same are more simple in their construction and more effective in their operation.

SAW FILING MACHINE.—D. H. Iseminger, McLean, Ill.—The object of this invention is to provide a simple and effective and conveniently operated machine for filing the teeth of straight saws. It consists of the combination of saw clamps with a guide rod and file stock, the file stock being provided with certain wavel appliances to enable the file to be pointed and held parallel to itself at each successive tooth of the same. The machine is provided with other devices perfecting its operation.

ATTACHMENT FOR SODA FOUNTAINS.—J. C. Wharton, Nashville, Tenn.—The object of this invention is to provide an attachment for soda water fountains whereby a jet of water will be made to play upon each of the nozzles of the sirup foot cocks (which form a part of the fountain apparatus as generally constructed) and cleanse the said nozzles from any adherent drops of sirup thus preventing the obstruction of the same by the saccharine matter of the sirups collecting thereon.

HAND SPLINT KNIFE.—Samuel Friend, and John McCollom, Decatur, Ill.—This invention relates to an improvement in a knife for splitting or riving splints or splits from timber for making baskets and other purposes, and consists in a tool resembling a spoke shave in form and is worked by one man drawing it towards him without a carriage, instead of by pushing with several men in the manner of the splint machines in common use.

HOSE AND MACHINERY FOR MAKING IT.—Geo. Coles, London, and James Archibald Jacques, and Jao. Americus Fanshaw, Tottenham, England.—This invention consists in forming flexible hoses by plaiting or braiding the same around a core formed of rope or other suitable material and arranged so as to be withdrawn after the hose has been formed. It also consists in improvements in machinery for braiding the same.

BRAKE FOR RAILWAY CARS.—Martin H. Rumpf, Paris, France.—This brake consists in a lever with a block adherent thereto, suspended from an axis eccentric to the axis of the wheel and arranged so as to allow the block to bear on the face of the wheels together with other parts accessible thereto.

The principle of the system lies in the blocks being arranged in their dropping against the circumference of the wheels, to describe an arc of a circle, which intersects more or less obliquely the said circumference, so as to produce, of themselves, the blockage by means of the rotation of the wheels.

Answers to Correspondents.

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

SPECIAL NOTE.—This column is designed for the general interest and instruction of our readers, not for gratuitous replies to questions of a purely business or personal nature. We will publish such inquiries, however, when paid for as advertisements at \$1.00 a line, under the head of "Business and Personal."

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

J. C. N., of Minn.—"Will you inform me of the length of a rifle barrel having the greatest range, and also why a breech loading gun has a greater range than a muzzle loading one?" We cannot give you the absolute length of a rifle barrel that projects a ball the furthest, as there must be taken into consideration the weight and form of bullet, the amount of powder used, and the resistance offered to erratic movement by the thickness of the walls of the tube or barrel. On all and each of these points experts disagree, not however, on general principles, but on the difference of their experience. It is certain, however, that the barrel and its rifling are intended to give direction to the bullet and to confine the power imparted by the liberation of the gasses, until this direction is assured. When these are assured the benefit of the barrel's length ceases. In common use it is found that a barrel of twenty inches is as good as one of thirty-two inches in length. We have seen the ordinary Colt's pistol, navy size, barrel eight inches in length, project a ball accurately a distance of three hundred yards. Would a barrel of thirty-two inches do better? In regard to your second question, the breech loading gun has a greater range merely because there is less "windage," as the ball has not been loosened by being forced down the grooves it must again traverse.

J. P. C., of Ohio.—No step or foot bearing of metal is equal to good oak or rock maple for a turbine wheel. These woods are used as steps for turbines which develop a power six hundred or seven hundred horses. Wood bearings are also used for the stern supports of propeller screws.

P. P. C., of R. I.—"What constitutes the difference in the quality of cast steel, the original materials or the after working?" Both, but largely the latter. We have three specimens of cast steel on our table now, made by the American Tool Steel Company in Brooklyn, N. Y., each broken from the same bar and from the same end of the bar, yet so differing in appearance of fracture that one would be impelled, from the evidence of his eyesight, to declare they were three different grades of steel. These differences in texture, not in appearance only, but in fact, were brought about simply by the degrees of heat to which the pieces were subjected, no hammering being attempted. Now if such marked variations in the quality of steel from the same bar may be obtained simply by heating and hardening in clean water, why should not still greater differences and qualities be produced by judicious forging? By this means a course grained steel may be wrought into a delicate spring or a fine tool, having a good cutting edge. Too much, however, in this case is left to the skill of the forger, and it is safer to use the best material if the best results are desired.

J. A., of Mass.—Acids act not only upon the edge of steel blades, but upon their quality. We know the reason for the first but we cannot explain the other phenomenon. The acid of fruits attacks vigorously the steel, especially when presented in a thin edge—almost all surface—and rapidly oxidizes it. But why a blade of steel long exposed to the action of acids refuses to receive the hardening attempted by the forger's hammer and bath we cannot say. The fact is one of the uncracked nuts in mechanics, but it is, nevertheless a fact.

W. A. K., of Mass.—Cast iron is capable of receiving a cutting edge. The only reason why it is not used instead of cast steel, much more costly, is that it will not retain that edge. Still, we have used a razor blade made of cast iron and found it shaved as cleanly and perfectly as one of fine steel. Cast iron hatchets are now manufactured and work well for a time. We cannot, however, recommend cast iron as a substitute for steel for edge tools.

M. A. R., of R. I.—The temper of tools used in cutting wood can easily be destroyed by being driven too fast. The fact that the wood is green or wet does not affect the result. Green wood will as soon deteriorate the quality of a cutter, whether bit, chisel, or gouge as the hardest quality of kiln dried timber.

J., of—An anonymous correspondent, such as we seldom notice, asks if steam is inflammable. The question may be of some general value, and we answer that it has the power of inflaming substances capable of being ignited by heat. It is not the medium but the temperature that produces fire or inflammability.

P. C. W., of Mass.—Carbonates of lime are acted upon by acids, therefore keep all acidulated liquids and fruits from your marble table. Preserve the varnished surfaces of your furniture from defacement by not allowing alcohol in any form to come in contact with them. The reason is obvious.

Business and Personal.

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

Wanted to know where to obtain a reliable liquid meter for registering petroleum. Address E. W. Faucett, Petroleum Center, Pa.

A. H. Scott, Concord, N. C., has a valuable new patent for sale, and wishes to communicate with dealers in patents in the several States.

New pictures for the zoetrope. Series No 5, sold by book-sellers, or sent for \$1, by Milton Bradley & Co., Springfield, Mass.

Paper mill wanted. Address T. S. V., Roslyn, L. I.

The best lathe for irregular forms, now exhibiting at Maryland Institute. Address, for particulars, during fair. A. R. Stewart, Maryland Institute, Baltimore, Md.

An interest in a valuable agricultural improvement is offered to any one who will furnish means to sell the right. Address "R." 231 F st., Washington, D. C.

To manufacturers.—Fine machinery of every kind designed and built by S. W. Gardiner, No. 6 Alling st., Newark, N. J.

Parties about to buy steam boilers should examine Root's wrought iron sectional safety boiler at 95 and 97 Liberty st., New York. See advertisement.

Inventors and owners of small patents send circulars to post-office box 111, Peekskill, N. Y.

The pew hat rack.—County rights for sale. Send for circular to E. S. Blake, Pittsburgh, Pa.

Peck's patent drop press. For circulars, address the sole manufacturers, Milo Peck & Co., New Haven, Conn.

American Watchmaker and Jeweler. By J. Parish Stelle. Jesse Haney & Co., 119 Nassau st., New York. Price 25 cents.

Millwrights can make favorable arrangements for sale of best water wheel in use. Address Peekskill Man'f'g Co., Peekskill, N. Y.

For sale—barrel machinery, nearly new, for whiskey and coal oil barrels. Address postoffice box 290, Cincinnati, Ohio.

For Blanchard's spoke lathes, address Exeter Machine Works, Exeter, N. H.

Portable pumping machinery to rent, of any capacity desired, and pass sand and gravel without injury. Wm. D. Andrews & Brother, 414 Water st., New York.

Adams' air cylinder graining machines for painters and all manufacturers of painted ware. Machine guaranteed. Send stamp for circular to Heath, Smith & Co., 400 West 15th st.

For descriptive circular of the best grate bar in use, address Hutchinson & Laurence, No. 8 Dey st., New York.

Manufacturers wanted to build Ball's Ohio reapers and mowers. For terms and territory apply to J. A. Saxton, Canton, Ohio.

N. C. Stiles' pat. punching and drop presses, Middletown, Ct.

For sale—the patent right, in Great Britain, for perforated saws. The manufacture of these saws is now firmly established in the United States, and they are rapidly taking the place of all other solid saws. Apply to J. E. Emerson, Trenton, N. J.

Prang's American chromos for sale at all respectable art stores. Catalogues mailed free by L. Prang & Co., Boston.

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

Winans' anti-incrustation powder, 11 Wall st., N. Y. 20,000 references. No foaming. No injury. 12 years in use. Imitations plentiful.