

into the bed of the river. The track of the spout was about thirty feet wide. It occurred many years ago, and one of the old settlers told me it was accompanied by a great wind and noise. In Haywood county there is a singular split in the top of a mountain, said to have occurred about the same time. I visited the track of one on an old road leading from the Warm Springs to Tennessee. Just where the spout crossed, the road had been treated with poles on the corduroy plan. In their place was an immense ditch, while some of the poles were to be found in trees far below. One of the neighbors describing it said, "the spring branch was as big as Broad River." I learned also that they were frequent there, and the road, though the best and shortest to Tennessee, had to be abandoned for that reason. The formation of the gap above was similar to that described by "D. C." at Clayton and on the north-east side (in Tennessee, the Stateline, apparently straight on the map, runs with the Unaka Ridge, hence is zigzag) was a farm noted for its peaches and grapes. I tried both myself when none were to be had anywhere else for sixty miles around. I shall not occupy your valuable space with any theories as to the frost-line or fog and air currents. The latter has been well and no doubt will be fully treated by "D. C.," and I know more ably than I should: but there are peculiarities of formation and location in the mountains of Western North Carolina, which especially fit them for the culture of the grape. I know by observation, and it has been demonstrated by others in practical experience. One of these peculiarities is in many points a total absence of frost, or, as some term it, the existence of a line of altitude above which frost has never been known. The seeming mystery is plainly solved in the action of fog and air currents similar to that so well described as existing at Clayton, Ga. In one point I think D. C. is incorrect: the term is not Ball but Bald, from the utter bareness or absence of any tree-growth. The Indians viewed these bald peaks with a religious reverence. My own opinion is that they had an origin in fire, and as the practice of burning the woods is yearly becoming less common, they are decreasing. Another theory is that they are caused by the fierce, cold winds which sweep the elevated and exposed points. Still I have seen points equally high in the immediate neighborhood covered with trees. Some of the Indians call them "Devil's tracks."

The Warm Springs region is one of peculiar interest to scientific men. The water of the Springs has a temperature of 104° Fahrenheit, contains sulphur, carbonic acid gas, and traces of some other minerals. They are located near the junction of the limestone and metamorphic slates. As a mineral region the country has never been well explored; lead, silver, and copper are plenty, iron of the best quality abundant; a large mass of corundum opens a few miles from the Springs, and I was shown a sample of cinnabar which was said to have been obtained from a creek about fifteen miles from the Springs. The scenery is wildly grand and beautiful, and were the river but navigable its fame would be world-wide. A railroad from Greenville, S. C., via Asheville, N. C., to some point on the East Tenn. and Va. R., has for years been chartered, also an extension of the Wst. N. C. R. R. to a similar point. One will be built, surveys have been made and some grading done. The Springs are located on the French Broad River, twenty-four miles from Greenville, Tenn., on the East Tenn. and Va. R. R. H. E. COLTON, Brooklyn, L. I., Dec. 27, 1866.

[For the Scientific American.]
Graphite--Plumbago.

In addition to our communication on this mineral—vide page 388, last vol. SCIENTIFIC AMERICAN—we will give some further statements in relation to the same subject.

According to Percy, the value of the graphite does not depend upon its purity, but upon its grain and texture, for the crystallized graphite of Ceylon, in which only from 1-2 to 6 per cent of foreign ingredients exists, is not fit for pencils; while the black lead from Borrowdale, in England, with thirteen per cent of impurities, has been found to be very well suited for their manufacture. For the making of pencils, only a compact, grainy kind is suitable; while for crucibles, the loose mold, with graphite appearing in shiny scales, is preferable. This kind generally occurs with an enormous amount of mineral matter, unequally diffused through the mass, and producing thus, even in small hand-pieces, respective differences in its specific weight.

The most valuable kind of graphite is, of course, that which is applicable for the manufacture of pencils; but it is seldom found. The graphite of Borrowdale, above referred to, is sold monthly by auction, at a price from 35 shillings to 45 shillings a pound. According to Ure, the net produce has in the six weeks annual working of some years amounted to 30,000 or 40,000 lbs. At the last World's Fair in London there were samples exhibited from Liberia, which were said to be still more valuable than the Cumberland graphite. In 1863, a process of preparing black lead was described by Brodie, which is said to produce a material adapted to all those purposes to which, thus far, the best and most expensive plumbago has alone been applicable.

Graphite is extensively used in making crucibles for melting the precious metals and in jewelry manufactories, as well as for melting bronze, steel and iron in small quantities. The crucibles of Passau, Bavaria, are much in demand, but they are now of an inferior quality, compared with ten or twenty years ago, when they could be used for thirty operations, while at present they do not stand more than eight or ten. The material from which those crucibles are made does not properly bear the name of graphite—it is gneiss, containing only 48 to 35 per cent of graphite. First it is reduced to a fine powder, then mixed thoroughly with one half or one

third of its weight of clay, formed to a paste and stamped into forms or worked like earthenware. The product is not burned, but only exposed to a moderate heat until perfectly dry.

Until twenty years ago England supplied all its wants in this article by importation from Germany. Now it produces its own, and even competes with Germany, by importing the graphite from Ceylon. In 1862, 2,084 tons of plumbago were shipped from Ceylon, and of these not less than 1,736 tons were brought to England. Most of this quantity is probably used by the Patent Plumbago Crucible Co., at Battersea, near London, who also employ the Stourbridge clay: but as very much depends upon the proportion in which it is mixed with the black lead, this proportion is kept a secret. Still, it has been found by analysis, that their crucibles contain 52.6 per cent of carbon, 45.4 per cent of earthy matter, and 2.08 per cent of water. We may mention further, that in 1862, the price of the Ceylon graphite was £10 sterling per ton, and that at present it is £25.

Besides the uses above mentioned, plumbago is employed for portable chemical furnaces, muffles, retorts and tubes for chemists. Mixed with soft soap and lard oil, it forms a very good lubricator for gearing.

Graphite is generally considered as an allotropic state of carbon. It has also been regarded as a carbide of iron, for the reason that it is mostly found in combination with iron. It has only recently been advanced by a French chemist that graphite must be considered an elementary substance. It has been obtained artificially, by slowly cooling gray cast iron which was overcharged with carbon, and dissolving the mixture in aqua regia; a crystalline body of a metallic lustre, and identical with the natural graphite, remains in the liquid; and lately Paula observed its formation from the cyanogen compounds in the preparation of caustic soda. LEAD.

Patent Dredging Machine.

"A patent has been issued to McClintock & Scott, of New Orleans, for a dredging machine, upon recommendation of Gen. Humphreys, Chief of Topographical Engineers, United States Army, that the same is necessary for the prosecution of improvements at the mouth of the Mississippi."

[We find the above in the *N. Y. Times*. There must be some error about it—patents can only be legally granted for new and useful inventions, and not upon the mere recommendation of some party interested.—Eds.]

ARTIFICIAL STONE.—Sand mixed with a solution of silicate of soda, is reported to make a stone of unequalled hardness. It can be cast into any form and of any tint, while soft; and when laid in cement of the same, may be said to produce an almost imperishable structure of solid rock. A company is manufacturing it in Chicago.

Recent American and Foreign Patents.

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

LOG CARRIAGE FOR SAW MILLS.—A. M. Beard, Hillsboro Bridge, N. H.—This invention consists in certain new and useful improvements in log carriages, whereby the log is secured and handled in an easy and rapid manner, and also in an index of novel construction, which determines without calculation the point where the saw should enter the log in making the first cut, saving time and labor.

BUTTER MOLD.—H. W. Hopkins, Milford, N. H.—This invention relates to the construction of butter molds of stearite or soap stone.

BURGALAR ALARM.—George A. Colton, Adrian, Michigan.—This invention relates to an attachment for doors, which attachment is of such a construction and arrangement of parts that, when the door is opened, an alarm will be sounded.

HANGING OF MIRRORS AND LOOKING GLASSES.—W. C. Cumming, Peekskill, N. Y.—This invention consists in so hanging or suspending a mirror that it can be not only lowered or raised in height, but also brought to any desired inclination at pleasure, and set or sustained in such positions.

TAG OR LABEL CARD.—N. H. Bruce, Forge Village, Westford, Mass.—This invention consists in securing the cord or line to the tag, by first nipping and fastening the cord in a hollow metallic tube, that is then secured to the card or tag at one of its ends, by folding such end over the same, and glueing or otherwise cementing or securing the whole together.

BUTTON HOLE CUTTER.—Charles N. Cutter, Worcester, Mass.—This invention consists in so constructing the cutter that it can be adjusted with the utmost accuracy and readiness to the cutting of button holes of different sizes.

GRINDING MILL.—Charles Clifton, Jersey City, N. J.—This invention relates to machines for the grinding or pulverizing of paints, ores, and other minerals; and it consists principally of a revolving hollow cylinder tapering from end to end, in combination with a stationary crusher or grinder, the two being arranged and combined together in such a manner that an efficient grinding mill is obtained.

STEAM BOILER.—W. D. Andrews, New York City.—This invention consists of a boiler having a fireplace extending over its entire horizontal area, with the exception of a narrow water space surrounding it, and a series of tubes, whether one or more, passing horizontally through the water space, above the fire place, where the said fire place and the said tube or tubes are connected by, and communicated through, a combustion chamber formed outside the boiler, having openings, adjustable or otherwise, for the admission of atmospheric air thereto, and an opening or openings passing through the water space surrounding the fire place, and communicating with the latter.

SHEEP-SKIN OR OTHER MITTENS.—A. P. Smith, Sterling, Ill.—This invention consists in cutting the sheep-skin of which the mitten is to be made, in sections, and then sewing up the facing with the mitten, as its several sections are sewed together.

ALARM GUN.—Albert Johnson and S. E. Allen, Raleigh, N. C.—This invention relates to an alarm gun with which persons may be warned of the approach of burglars or thieves—the gun being susceptible of being so set or adjusted as to fire in any direction.

WAGON JACK.—Geo. F. Graves, Mt. Upton, N. Y.—This invention consists in the combination with each other of a lifting lever having a bifurcated end, a toothed locking bar, and a standard, whereby a simple and efficient jack for raising the axles of carriages while lubricating or removing the wheels, is obtained.

WRINGER FOR CLOTHES, MOPS, ETC.—Charles E. Gage, Fond du Lac, Wis.—This invention relates to a novel constructed wringer, especially designed for wringing out a mop, although it can be used for wringing clothes to much advantage.

CHEMICAL PREPARATION FOR PRESERVING BUTTER AND MEATS.—Wm. Ross, Day's store, Pa.—This invention consists in a chemical preparation in-

tended for the preservation of butter, to prevent its becoming strong and rancid; of fresh meats, to prevent putrefaction, and to prevent the same from receiving a salty and strong taste when preserved by salt only.

CLAMP.—Wm. Strevell, Jersey City, N. J.—This invention relates to a clamp especially intended for use in connection with machines for the stretching of leather, in the manufacture of machine belting or banding, although it can be applied for other and various purposes.

BOOTS AND SHOES.—M. Evans, Russiaville, Ind.—This invention relates to the manner of lacing boots or shoes, and it consists principally in so forming the boot or shoe that it can be laced or buttoned up in front in lieu of behind, with the utmost ease and convenience to the person wearing the boot or shoe and with one third less lacing at most.

HARVESTER.—V. W. Blanchard, Bridport, Vermont.—This invention relates to a new and improved arrangement of gearing for varying the speed of the sickle as circumstances may require. It also relates to a new and useful improvement in applying the driver's seat to the machine, and in the application of springs to the machine as hereinafter fully shown and described, whereby the draught and movement of the working parts are rendered more uniform than hitherto. The invention also relates to an improved manner of attaching the cutter bar to the machine, and also an improved manner of attaching the platform to the machine, whereby the former may be readily detached when necessary; and, lastly, the invention consists in an improved grain-discharging device.

SPINDLE STOP.—Francis A. Sterry, Canton, Mass.—The object of this invention is to provide a simple and effectual method by which the stops of upright spindles and shafts may be frequently and sufficiently oiled automatically, and the invention consists in a peculiarly-formed cup attached to the ordinary stop box.

WEDGING OR HAND HOE.—C. A. Rose, Columbus, Ga.—This invention has for its object to furnish an improved hoe, the blade of which is removable from the eye, and is so formed that when one side or edge becomes worn it may be removed and reversed so that one blade may last as long as two ordinary hoes.

LADDER.—F. W. Hovey, Boston, Mass.—This invention has for its object to furnish an improved ladder for use in situations where the inclination of the ladder may be varying constantly or may be varied occasionally.

BOB SLEIGH.—William M. C. Matthews, Summer Hill, Pa.—This invention consists in pivoting the bolsters to the bobs of the sleighs, for the purpose of preventing the said bolsters from moving backward and forward, when the ends of the bobs go up and down.

TOY WIND WHEEL.—Max Miller, Brooklyn, N. Y.—This invention has for its object to furnish a simple, cheap, and amusing toy for children.

MOP WRINGER.—A. J. Robinson, Troy, N. Y.—This invention has for its object to furnish an improved means by which a mop may be wrung without its being necessary to take hold of it with the hands for that purpose.

BROOM HEAD.—Thomas B. Carroll, Noblesville, Ind.—This invention has for its object to furnish an improved broom head so constructed and arranged that it may be light, strong, and easily made, and which cannot mar or injure the furniture by coming in contact with it in sweeping.

SCAFFOLD.—D. D. Adams, Brookline, Mass.—This invention has for its object to furnish an improved scaffold for use in repairing the tops of chimneys, simple in construction, easily raised, lowered, or adjusted, upon a chimney and which can be closely packed for storage or transportation.

IRON POST FOR WIRE FENCE.—B. S. Haviland, Fort Dodge, Iowa.—This invention has for its object to furnish an improved iron post for wire fence, simple, cheap, light and durable.

GRAIN DRYER.—Archibald H. C. Barber, Clinton, Ill.—This invention has for its object to furnish an improved grain dryer by means of which grain may be thoroughly, evenly and quickly dried.

FRUIT BOX.—Eli Secor, Lawrence, Mich.—This invention consists in forming a box for the transportation and safe keeping of small varieties of fruits, as berries, etc., by combining a number of trays together in such a manner that they are easily separated, and in which the fruit may be safely kept and transported from place to place.

AUTOMATIC GRIST ALARM.—Michael W. Helton and James H. Redfield, Bloomington, Ind.—The object of this invention is to provide means by which the miller in custom grist mills may be notified at what time the bags should be changed from one grist to another, so that each customer may get the flour or meal from his own grain.

SAD STONE.—H. W. Hopkins, Milford, N. H.—This invention consists in adapting a steatite sad stone to different kinds of work, as ironing and polishing linen and other articles by affixing to it a reversible handle.

SAW MILL CARRIAGE ROLLER.—William Herrick, Northampton, Mass.—This invention consists in forming the journals of saw-mill carriage rollers of such a shape that the roller and the journals can be cast in one piece, and all lateral motion in the roller and in the carriage which rests upon it be prevented.

LOG ADJUSTER.—Samuel Bristow, Bedford, Ind.—This invention consists in arranging shafts with drum and wheels on them, in such a manner that with a lever, pulley, rope and chains one man may be able to handle saw logs with ease.

MATERIALS FOR ROOFING, SIDING AND COVERING BUILDINGS, ETC.—C. J. Fay, Hammon, N. J.—This invention relates to the use of paper, made of manilla, hemp or grass, for the roofing and siding of buildings, and as a covering or roofing for the tops and sides of cars, decks of vessels and carriages, either upon the inside or outside of the same or both, and for the purpose of awnings or shades or for any other purpose where it is desired to render the surface on which the said paper is used waterproof, or, in other words, impervious to moisture or the air.

SASH FASTENING.—Robert Hutton, Brooklyn, N. Y.—This invention relates to a new and improved fastening for window sashes, whereby the latter may be supported at any desired height. It consists of a wedge or key fitted in a socket attached to the window frame and interposed between one of the side pieces of the sash and a friction roller in the socket, whereby a very simple and efficient sash fastening is obtained, one which will afford an easy manipulation of the sash, not liable to become deranged by use, and which may be manufactured at a small cost.

COMPOSITION FOR COATING AND LINING OIL BARRELS AND SIMILAR VESSELS.—John P. Schenck, Jr., Matteawan, N. Y.—The object of this invention is to furnish a cheap, effective and reliable means for lining oil barrels and for similar uses, so as to prevent leakage or evaporation; and which shall, at the same time, be so elastic as not to be cracked or injured by the spring of the staves in handling the barrels.

CARPET SWEEPER.—George Furrington, New York City, and James H. Furrington, Mattapoisett, Mass.—This invention has for its object to so improve the carpet sweepers as to make them more durable, and more reliable in operation.

RECTIFIER.—A. Werne, New York City.—The object of this invention is to so arrange a rectifier or doubler, through which the vapors are conducted on their passage from the still to the worm, that the low wines may be quickly and completely separated and retained. This device is very simple, small, and compact, and seems to work to great satisfaction; it can be arranged with little expense on old stills as well as new ones.

TARGET FOR AIR GUNS.—Charles A. Demling, New York City.—The object of this invention is to construct a target for practising with air guns, in such a manner that such portions of the same as may be struck by the ball will fall back so as to be out of reach of the shooter; but when all the parts have been thus thrown back, they may at once be brought forward again by only pulling a rope at the foot of the target.

CHURN.—R. W. Shriner, Woodland, Mich.—This invention relates to an improvement in the power by which a churn is worked, and has for its object the giving to the dasher an up and down motion, as well as an alternate horizontal rotary motion; and the invention consists not only in the peculiarity of this motion, by which the butter is much easier made than by any other known motion, but also in the construction of the machinery by which the above mentioned object can be attained.

COMPOUND FOR SWEETENING, COLORING AND FLAVORING TOBACCO.—

FRANK W. STERRY, Morrisania, N. Y.—This invention relates to a novel compound, whereby fine cut or any other chewing tobacco is sweetened and colored without any dangerous ingredients.

SCAFFOLD BRACKET.—Charles Eddy, Grass Lake, Mich.—This invention consists in providing a bracket designed for scaffolds in shingling or roofing buildings.

REVOLVING HAY ELEVATOR.—Matthew Mitchell, Crown Point, Ind.—This invention consists in the construction of a derrick in such a form as to admit its standing near a haystack, and a revolving upright shaft and levers arranged in such a manner that hay can be elevated easily and expeditiously.

DEVICE FOR HOLDING THE SLATS OF WINDOW BLINDS.—Charles B. Francis, Newark, N. J.—This invention consists in the employment of a slotted bar or lever that has a turn at right angles, and around which a metallic strap passes and is secured to a window blind, in such a manner that the slats of the blind may be held in any desired position.

REAMER.—William Burlingame, Exeter, N. H.—This invention consists in uniting and casting steel cutters with the body of a reamer, so that a large quantity of steel may be saved; also large size taps may be cast in with the threads of steel upon the outside.

FASTENING SLEIGH BELLS.—J. H. Abell, East Hampton, Conn.—This invention consists in the arrangement of a T-shaped, double hook spring catch, in combination with a sleigh bell, provided with a slot or mortise to receive the hook-shaped end of the spring catch, in such a manner that by passing the hooks of the catch through the strap or other material to which the bell is to be fastened, and forcing them into the slot of the bell, they spring apart over the inner edges of said slot, and the bell is firmly held in its place.

SAFETY ATTACHMENT TO CARRIAGES.—Claude Ducruix, New York City.—This invention relates to a new device, whereby a wagon can be instantaneously stopped and the horse detached therefrom in case the latter should try to run away.

COTTON SCRAPER.—Nicholas Gotten, Union Depot, Tenn.—This invention consists in constructing a cotton scraper in such a manner that the scraper may be adjusted to different angles and depths upon the frame as the nature of the work may require.

MANUFACTURE AND TAPPING OF LEAD PIPES.—Frederick Bennett, Watford, England.—This invention applies to lead pipes manufactured by hydraulic pressure, and it consists of not only an improved process of manufacturing lead and composition pipes, but likewise of a new mode of tinning, silver tinning, or coating lead pipes with other non-corrosive metal or composition.

JOINT FOR PIPES.—James Bowden, New York City.—This invention relates to a joint for lead pipes or pipes of any other description, which is composed of two tapering or wedge-shaped thimbles, which are split or made in sections, in combination with a clamping nut screwed on the end of the inner thimble, in such a manner that when the thimbles are properly arranged on the end of a tube and the nut is screwed up, the inner thimble is firmly clamped to the pipe, and a union coupling, or a coupling of any other description, can be readily secured to the end of said inner thimble, and two pieces of lead pipe can be united without soldering or "wiping."

PROCESS FOR GLAZING PAPER.—Frederick Beck, New York City.—This invention consists in treating paper with stearic acid by applying the acid to it and then exposing it to the action of friction surfaces, in such a manner that the surface of the paper is coated with a thin layer of said acid, imparting to it a fine gloss, and rendering it soft, white, and impervious to water.

PAPER FILE.—Joseph Fleischl, New York City.—This invention relates to a paper file which can be used for one single paper or for a number of papers. For the purpose of securing a single paper a segmental cylinder is slipped over the side bar of the paper file and over the paper, so as to hold the paper without injuring it in the least. If two or more papers are to be filed in the paper file, adjustable spring clamps are secured to the side bar of the paper file, and the papers to be filed are held between the springs and the flattened surface of said bar.

WINDOW LATCH.—Ernst T. Hofmann, Poughkeepsie, N. Y.—This invention consists in the arrangement of a spring stop or catch in combination with an ordinary revolving latch, in such a manner that when the said latch is closed, it is securely locked by the spring stop, and it cannot be opened or forced back until said stop or catch is depressed or made to release the latch.

LOCK.—Rudolph Vollschtz, New York City.—This invention relates to a lock, the mechanism of which is inclosed in a cylindrical case, said mechanism being composed of three (more or less) tumblers, which are provided with slots to admit the key, so that by turning said key the heads of the tumblers arrange themselves in the proper position to allow the tumbler to move in or out. An elastic pad or spring which bears on the ends of said tumblers, has a tendency to keep the same in such a position that their slots coincide to admit the key, and that their heads prevent the bolt from moving, the whole mechanism being so arranged that it takes but little room, and that a safe lock, with a small and convenient key, can be produced at a comparatively small cost.

MACHINE FOR PRESSING PEAT.—N. H. Barber, New York City.—This invention relates to a peat machine composed of a revolving annular cylinder, provided with a number of holes and with a series of plungers which revolve with the cylinder, and move back and forth in the holes by the action of cams, which draw them out to receive the feed and force them in at the proper time for the purpose of compressing the peat while the cylinder is in motion.

MANUFACTURE OF STEEL-HEADED RAILS.—L. M. Hart, Troy, N. Y.—This invention consists, first, in uniting the steel slab with the slab of iron by welding or other means, previous to the operation of rolling, in such a manner that the steel is prevented from scaling off when the rail is ready. It consists, second, in securing the steel slab to the pile by screws or hook bolts, or other means, in such a manner that the steel is prevented from curling during the operation of rolling, and steel-headed rails can be produced which are durable, and from which the steel is not liable to separate itself.

REFINING OIL, ETC.—Max H. Kruger, New York City.—This invention relates to an apparatus which is intended for deodorizing and refining petroleum and other hydrocarbon liquids. It consists of a series of filters which are filled with powdered charcoal or other suitable material, and hung on rods in the interior of a chamber or box which can be filled with steam, in such a manner that the petroleum or other hydrocarbon liquid, while passing through the filtering material, are kept at a sufficiently high temperature to prevent the resinous parts in said oil from choking up the filters, and the operation of filtering can be conducted with ease and facility.

MANUFACTURE OF WOOL FROM PINE LEAVES.—Adolphe Rogue, Briere, France.—This invention relates to a new mode of producing from pine leaves a sort of hygienic wool, capable of replacing to some extent common wool or hair in their various applications, and particularly fit to be employed in certain diseases such as rheumatism, gout, pulmonary affections, neuralgia, and so forth.

CENTERING TOOL.—Nathan Puckett, Terre Haute, Ind.—This invention relates to a novel and convenient device for drilling a center hole accurately in a bar of iron or any piece of timber to be turned in a turning lathe.

RAILROAD FREIGHT CARS.—Richard Eaton, Montreal, Canada.—This improvement relates to the construction of railroad freight cars, and is designed for increasing largely the capacity of a car for carrying freight.

RAILROAD CAR BRAKES.—Charles Bemis, Mishawaka, Md.—This invention relates to a new and improved arrangement of a brake apparatus for railroad cars.

SPRING CRUPPER.—Edward Powell, Spring, Penn.—This improved crupper is provided with a spring supporter which exerts a constant upward pressure under the tail of the horse so as to induce a habit of carrying the tail in a higher and more graceful position.

SAWS.—Asa Bee, White Oak, West Va. (patented January 1st, 1867).—This invention relates to the application of plane-irons or bits to the ordinary mill-saw, for the purpose of removing the roughness or projecting fibre from the face of the plank as the saw passes through the kerf; and the improvement consists in grooving the cutting edge of the plane-iron, the better to adapt it to discharge the cuttings which it removes from the wood.

SPRING HOLDER FOR WIPING CLOTHS.—Patented January 1st, 1867.—Henry Johnson, Chicago, Ill.—This invention consists of an arrangement of spring

fingers, adapted to be furnished with a wet or dry cloth, to be used in cleaning exterior or interior surfaces, dishes, bottles, lamp-chimneys, and other hollow articles, especially those difficult to be reached by the hand and of varying interior diameter.

CULTIVATOR.—J. C. Hoffeditz, Mercersburg, Penn.—The invention consists of a cultivator or marker, having adjustable spring standards and handle, and with shovels, adapted to different kinds of work, or removable for the purpose of adapting the machine to a different class of work. "Rights for all the States except Pennsylvania for sale."

CULTIVATOR TOOTH.—J. C. Hoffeditz, Mercersburg, Penn.—The standard is pivoted in the hanger by a bolt, and is restrained from vibration by a wooden pin, which breaks when the share comes in collision with an immovable obstacle, the standard being replaced in position, after passing the obstacle, and a new pin inserted. "Rights for all the States except Pennsylvania for sale."

BURGLAR ALARM-GUN.—Peter Sinsher, Versailles, Ohio.—This invention relates to an improved compound gun, having several barrels so connected and arranged as to be fired simultaneously in different directions, as a defence against burglars.

SELF-LUBRICATING ATTACHMENT FOR JOURNALS OF MACHINERY.—George M. Morris, Cohoes, N. Y.—This invention relates to an improvement in self-lubricating or oiling apparatus for journals of machinery, and consists in attaching an oil-cup to the journal-box in such manner that any excess of oil flows back into the oil-cup from the journal-box. Thus the journal is kept constantly lubricated; heating is prevented and there is no waste of oil.

COTTON-CLEANING AND RELINTING MACHINE.—Robert J. Clay, New York City.—This invention relates to a machine for cleaning and relinting cotton wool which has been damaged by matting the fibres together and becoming foul with dirt or any extraneous substance.

TRUSS FOR HERNIA.—John A. W. Justi, Savannah, Ga.—This invention consists in the peculiar conformation of the pad-plate, which is not a simple flat spring, but is curved and arched in such manner that the pads may be fitted accurately against the person of the patient, securing ease and comfort in the movements of the body.

FIRE-GRATE FOR STEAM BOILER.—Richard Eaton, Lee, England.—This invention relates to an improved mode of constructing fire-grates and furnaces for locomotive and other steam boilers, to burn wood or peat, and consists in the arrangement of grate-bars, which overlap and underlap each other in steps or terraces, with horizontal divisions between the bars, directing the air laterally towards the sides of the fire-box.

STREET CAR HEATER.—John Gibson, Albany, N. Y.—The object of this invention is to warm street cars: it is accomplished by placing one or more stoves under the seat, and conducting the smoke under the flooring and up to the roof, where it escapes without giving any annoyance, after radiating its heat into the car in its passage through the pipe.

VALVES.—Samuel J. Peet, New York City.—This invention relates to an improvement in valves for steam, gas, air, water, and all other fluids, where valves, cocks, faucets, gates or traps are used, and consists in a pair of metal discs or plates fitted in a box or shell, in such a manner as to close against the seats by being spread apart with a conical wedge, or a straight wedge turning on a swivel screwed between the discs, or which may be operated on by a sliding wedge.

STREET RAILROAD CARS.—Joseph S. Fairfax, Wheeling, W. Va.—This invention relates to improvements in a street railroad car, the principal object of which is to enable the car to turn curves easily, so that it may be stopped on the curve if desired, and be started again without difficulty.

SPOKE-DRIVING BENCH.—F. M. Lemmon, Shelbyville, Ill.—This invention relates to a new and improved machine for driving spokes in wagon-wheel hubs, and consists in a bench having a hub-clamping device by which the hub is firmly secured to the bench, and an adjustable rest for holding the spokes as they are driven, and also a binding device for holding the spokes down snug in the said rest, the whole making a very simple and desirable machine for the purpose mentioned.

CANE STRIPPER.—Melcher Mellinger, Dayton, Ohio.—This invention consists in the employment of two or more spring cutters which with a stationary platform form the device for cutting off the heads of the canes and with the further addition of a self-adjusting plate or plates form the stripping device.

REST FOR TURNING LATHES.—Henry K. Smith, Norwich, Conn.—This invention consists principally in a novel arrangement of gearing whereby the movement of the rest can be changed in direction at pleasure, that is, made to move either toward the right or left on the lathe bed and also in a novel manner of constructing the rest whereby it can be raised and lowered according as may be desired.

MACHINE FOR CUTTING FILES.—Isaac Goodspeed, Norwich, Conn.—This invention relates to a new and improved machine for cutting files, and has for its object simplicity of construction and the obtaining of all the advantages attending more expensive and pretentious machines hitherto devised for the purpose.

CAR COUPLING.—James McLaughlin, Duncannon, Pa.—This invention relates to a new and improved car coupling of that class which are self connecting or self-coupling, and it consists in a novel construction and arrangement of parts, whereby a very simple and efficient car coupling of the class specified is obtained.

COMBINATION OF A SQUARE, LEVEL, BEVEL AND PLUMB.—G. L. Chamberlin, Marietta, Ohio.—This invention relates to a new and useful combination of a square, level, bevel and plumb, whereby the several tools above specified are combined in one and either rendered capable of being used by a very simple adjustment of a part pertaining to the device.

SHUTTER AND BLIND FASTENING.—Robert Hutton, Brooklyn, N. Y.—This invention consists of a fastening constructed and applied to a window shutter or blind, in such a manner as to admit of the shutter or blind being secured in a more or less open state as desired, and also admit of being readily manipulated to secure the shutter or blind in any position between a fully open and nearly a closed state.

BLACKING BOX HOLDER.—George W. Taylor, Springfield, Vt.—This invention relates to a new and improved device for holding blacking boxes, so that the hands of a person in blacking boots or shoes will not be soiled in rubbing the brush over the moistened blacking in the box. The device also admitting of the box being suspended on a nail or hook convenient for use at any time.

MACHINE FOR MAKING EYELETS.—Levi Richards, Providence, R. I.—This invention relates to a new and improved machine for making metallic eyelets, and it consists of a cutter and dies arranged and operated in such a manner that they will cut the plate in circular form and swage it into cup or tube shape. The invention also consists of a conveyer or carrier for taking the cup or tube from the dies above mentioned, and conveying it to a second pair of dies operating in connection with a punch, and in such manner that the cup or tube, formed by the first pair of dies, will be swaged into proper form and punched, so as to complete the eyelet.

CULTIVATOR.—A. P. Hammon, J. H. Lincoln, S. Lincoln, T. W. Hammon, Montfort, Wis.—This invention relates to a new and improved device for cultivating plants grown in hills or drills, and it relates to a new and improved manner of arranging the plows, whereby the same are made to penetrate the earth at a uniform depth whether the device is passing over horizontal or inclined ground, and it also consists in a novel means for guiding the machine whereby the plows may, with the greatest facility be made to conform to the sinuosities of the rows of plants.

LOCK.—E. L. Gaylord, Litchfield, Conn.—This invention more especially applies to drawer locks and small locks generally which are placed upon parts adjacent to each other, such, for instance, as the drawers of a bureau, the small doors of a secretary, etc., and which should be provided with different keys so that one key cannot unlock more than one lock.

HOISTING TACKLE.—J. C. Pierce, New Philadelphia, Ohio.—This invention relates to a new and improved tackle for hoisting articles, generally such, for instance, as hay from wagons into the bays of barns, goods in warehouses, etc. Its object is to obtain a device for the purpose specified, which will admit of the articles being hoisted and also conveyed, when in an elevated state, to the place where it is to be deposited.

GRINDING MILL.—Gilbert D. Jones, New York City.—This invention relates to a new and improved grinding mill, of the kind commonly termed the Chilian mill, and it consists in having the peripheries of the wheels or rollers of V-form, and the bed on which the wheels or rollers work provided with an angular V-groove for the peripheries of the wheels or rollers to work or run in. The invention also consists in the employment or use of scrapers applied to the machine in such a manner that by a very simple adjustment the material to be ground may be kept within the path of the wheels or rollers, and when sufficiently ground discharged from the bed plate.

HOLLOW AUGER.—Joseph Ward, New York City.—This invention relates to a new and improved hollow auger; for cutting tenons on the ends of spokes, and also on the ends of tool handles to receive the ferules, the holes in the handles to receive the tangs of the tools being bored at the same time. The object of the invention is to obtain an implement for the purpose specified, which will be capable of being adapted to cut tenons of different diameters as may be required.

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 50 cents a line, under the head of "Business and Personal."

C. L. K., of Ill., asks:—Will there be any loss of water from a steam boiler with 75 lbs. pressure, supplying by means of a coil, steam for heating cold water or syrup, if the discharge of the coil is turned back to the boiler: and will the flow be kept up? We reply: If the coil is placed at a higher elevation than the boiler, the condensed water will be forced back to the water space of the boiler by the steam pressure, but not otherwise, as gravitation as well as the friction of the pipe must be overcome.

E. R. B., of N. Y., inquires why, when repeated hardenings of steel have cracked the metal, heating it to a low red and plunging in water will toughen it. Ede accounts for it by stating that repeated heating of steel abstracts the carbon and tends to return the steel to the condition of wrought iron.

A. P. H. D., of Wis.—There is no instrument corresponding in attractive power to a magnet, which has any value in discovering the precious metals. The "divining rod" is a relic of superstition and ignorance.

W. L. G., of N. Y., A. E., of Wis., and R. J. S. of O., suggest that W. F. D., of Conn. (page 406, Vol. XV.) has not taken care to remove the air from the upper angles or bends of his conduit pipes. Bubbles of air so confined have been the source of much annoyance. They are pretty sure to be found when the water is first let into an undulating pipe. The best way to remove them, is to close the delivery end of the pipe, and make small holes at the tops of the angles: as soon as the water flows out of the holes they are plugged up. If any of the angles are higher than the source, a suction pump must be used for them. When the water is highly aerated, as is often the case with spring water, the upper bends of the pipe should be provided with air chambers, each having a stopcock. This subject has been before discussed in this paper, and we took it for granted in our reply to W. F. D., that he was well informed on it.

H. W. H. of—Any person may call an article patented, or unpatented, in an advertisement. The law imposes a specific penalty only, when an article is stamped patented upon which no patent exists. If any person were to suffer by the deceptive advertisement he would have a remedy by writ at common law.

F. N. B., of Wis.—The bubble of air is to be removed from your barometer by inverting the tube and then dexterously moving it till the bubble escapes. But preliminary to this manipulation you must completely fill the well with distilled mercury and cork it up that the mercury may not be spilled. But if the instrument is valuable you will do better to send it to the manufacturer.

F. S., of O.—The mineral you send is iron pyrites or sulphide of iron. It is sometimes called fool's gold, and in small quantities it is worthless.

W. L. O., of Pa.—We know of no treatise on the gaging of casks. There is the gaging rod to be obtained at any tool store, which can be procured with directions for use. The contents of a cask can be approximately ascertained by measuring the various dimensions of the vessel and then performing a simple arithmetical calculation explained in almost any mechanical handbook.

J. Q. E., of Mass., asks how the wheels of a car rigidly secured to a common axle can turn a curve the inner rail of which is twenty feet shorter than the outer, without slipping. We answer, we do not know. We never supposed anybody thought they did. It is evident that either the outer wheel must drag or the inner one slip.

C. Oswego, N. Y.—Common gum copal varnish will preserve gun barrels from rust. A little boiled linseed oil may be mixed with it, and then it can be removed by turpentine.

Business and Personal.

The charge for insertion under this head is 50 cents a line.

Felix W. Robertson, of Galveston, Texas, wants to know where he can obtain a quick-setting and durable cement for cisterns. He builds cisterns of shells, sand, and Rosendale cement, which in the place where he operates will not harden except after an "inconvenient period."

I. T. J., 31 S. 3d street, Reading, Pa., wants descriptive circulars of spinning gins, hand looms, etc., for farm use. Also powder-drying machine, machine for making cigarettes, and most approved wind mills.

H. L. See back numbers of SCIENTIFIC AMERICAN as to steam plows.

E. H. Bell, Antestown, Pa., desires to know where he can obtain philosophical callipers.

The address of Mr. Rogers, the patentee of the "Naphtha Lamp," is wanted by Geo. H. Baker, Morenci, Mich.

B. and C., Canada, desire to know where they can obtain machinery for making solid-head pins. Also who owns the patent for tinning wire for pins.

Geo. P. Peck, Evansville, Ind., wishes to communicate with the agents or owners of Rodgers's Patent Gas Lamp, or Burner.

"Where can I get a Patent Chimney Jack," asks E. T. Barnum, Topeka, Kansas.

J. R. Lente, Blooming Grove, N. Y., desires to communicate with parties who drill wells through sandstone.

Makers of Wells's Patent Circular Saws are requested to communicate with J. A. Demuth, Forest City, Mo.

Inventions Patented in England by Americans.

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

PROVISIONAL PROTECTION FOR SIX MONTHS.

3,007.—**FLOOR COVERING.**—James H. Spencer, Philadelphia, Pa. Nov. 16, 1866
3,009.—**MANUFACTURE OF LADIES' SKIRTS.**—Morris Oppen, New York City, Nov. 16, 1866.

3,134.—**MODE OF AND MEANS FOR REGULATING AND REGISTERING THE TENSION OF FLAFOORTE STRINGS.**—Levi L. Tower, Boston, Mass. Nov. 28, 1866.

3,257.—**MACHINE FOR PEGGING BOOTS AND SHOES.**—Reuben W. Drew, Lowell, Mass. Dec. 8, 1866.