

**WINDOW SASH.**—John Groves, of New York city.—The invention relates to that particular class of window sashes, hinged at the bottom to a movable stile, and locked thereto and to the frame work at some point above. It consists in a double and reversible catch, which locks the sash to the stile and the stile to the frame. The sash is pivoted to the stile in the usual way and fitted snugly thereinto against a suitable flange or stop. An improved catch bar, having studs respectively on each side of its free end and pivoted to the stile, is used. Slotted plates on the top of the sash, and slotted plates on the stile frame, receive the studs of the catch bar. By this construction one double-studded and reversible catch on each side of the sash does all the locking.

**SUSPENDED LIFTING JACK.**—Hector C. Havemeyer, of New York city.—This invention relates to a new manner of applying hydraulic lifting jacks, with the object of using them in warehouses, magazines, sugar houses, shops, &c., for holding, goods, hogsheds, or other devices, suspended, and conveying the same along elevated tracks from one to another part of the buildings. The invention consists in suspending the lifting jack from a truck running on an elevated track; in providing it with guide rods and a lower cross-piece, whereby it is adapted to the suspended position and to the operation of lifting goods from the floor; and in the application to it of a universal joint, allowing it to swing in either direction without running the truck off the rails, or springing the plunger. This is a good and practical invention.

**PAVEMENT.**—Hermann A. Gunther, of New York city.—This invention consists in making a concrete pavement or sidewalk, constructed so that it may be taken up in small sections. Between blocks of artificial stone or concrete, is placed gum, tar, rubber, (or other water repellent substance,) poured into the joints between the blocks while said substance is in a molten state. The effect produced is to form a completely water tight joint, while small sections of the stone may be taken up whenever desired by the application of heat to the joints.

**APPARATUS FOR RELEASING HORSES.**—James Harrison, of New York city.—This invention furnishes an improved apparatus for application to the stalls of a stable, which will enable all the horses or other animals secured in said stalls to be disengaged and led or drawn from said stable, when, in case of fire or other accident, there may be no time to enter each stall and disengage and lead out the animals one at a time, or when the said animals may be so frightened that they will not leave their stalls. An excellent device, which should be in every large stable.

**ROCKING CHAIR.**—John W. H. Doubler, of Darlington, Wis., assignor to himself and William Logue, of same place.—This invention has for its object to furnish an improved rocking chair, which will rock easily and noiselessly and will require no more room than an ordinary chair made without rockers. A low stool or rocker bed, the side bars of which are flanged along the outer edges of their upper sides, said flanges serving as guards to keep the rockers from lateral displacement, support the rockers, which are placed under the seat of the chair. To the outer sides of the flanged side bars of the stool or rocker bed are attached side boards or guards. To prevent anything from getting beneath the rockers. The chair legs are made short; and to their outer ends are attached short rockers; or, if desired, the legs of the chair may be omitted and the rockers attached directly to the chair seat. Springs gradually retard the movement of the chair in either direction, and finally stop it at the proper point, and then assist, by their stored up power, in reversing the motion of the chair.

**EARTH PULVERIZER AND HARROW.**—James Lefebvre and George W. Shults, of Cambridge City, Ind.—This invention relates to a new way of more effectually pulverizing cloddy ground, after the plow, by arranging the broad points of rotary crushers in two sets, which act on the clod in lines at an angle to each other, and in a novel mode of locking the front crushers. A front set and a rear set of star wheels are arranged on horizontal parallel shafts extending across a frame mounted on them vertically to the direction in which the apparatus is to move. Each star wheel works independently of the other, and has a hub, working at the end against the hub of the wheel on each side, or one end of the hub of each outside wheel works against the frame. The arms of each set of wheels are arranged to work between the arms of the other set, at the sides between them for cleaning each other. The points of the arms of the front set are made broadest in the planes of rotation of the said wheels for cutting notches or channels in the ground in the direction of the movement of the machine, and the points of the rear set are made broadest in the planes of the axles to cut across or perpendicular to the cuts made by the front set for increasing the cutting action on the ground, and these latter points are made broader at the outer ends than toward the axle, for facilitating the escape of the stones, clods, or other matters which might wedge between them if they were narrowest at the points. A cranked rod extends across the frame parallel with the shafts, and in such relation that when swung downward the points of the front set of wheels will be engaged by it so as to be held against rotation, and thereby act as common scratching harrow teeth. A hand lever is pivoted to the frame and arranged with the cranked rod, so that the latter may be lifted out of connection with the points, when they are to be left free to turn, which may be done while in motion. This machine is adapted to cultivating each side of a row of plants by removing one or more of the star wheels from both shafts at the center and applying loose sleeves, corresponding to the hubs thereof to confine the remaining wheels in the right positions, so that the vacant spaces may make room for the plants; and for the greater protection of the plants, especially from the action of the points, which are more likely to throw earth upon them, the protecting disks are applied on the shaft, inside of the wheels next the space, which effectually prevents any earth being thrown upon them. Such disks may be applied to both shafts. When the machine is used for pulverizing and harrowing, these disks are removed and the star wheels replaced.

**SOLDERING APPARATUS.**—Luke Albert Smith, Kansas City, Mo.—This relates to a new and improved device for holding tin cans for soldering them; and it consists in an expanding and contracting cylinder. A ring, with a vertical flange on the inner edge, is mounted on a suitable support, with an expanding and contracting cylinder of sheet metal, arranged within said flange and supported by an extension. At the side opposite this extension, the shell of the cylinder is separated longitudinally, and the parts lap each other considerably, suitable mechanism being employed to contract the cylinder. The cylindrical part of the can to be soldered is placed over the cylinder when contracted. The cylinder is then expanded, and the can to be formed swelled out against the flange into the required shape, and then held for soldering, after which the cylinder is contracted and the can removed.

**HORSE POWER.**—Hemphill Smith, Shelby Station, Tenn.—This invention relates to an improved arrangement of draft rope, windlass, and weight in connection with the frame of a horse power, in such a way that the wheel can be used either inclined or horizontally, either as a tread wheel or draft wheel. When used as a tread wheel, a rope is stretched along the frame and connected with a windlass, which may have a ratchet and pawl to be prevented from unwinding. The horses are hitched to this rope, the windlass serving to equalize their power. In connection with the rope may be weights suspended at the corners of the frame. The horses are hitched to these weights, and their breaststraps connected with the rope. Their power will be increased the more they draw on the weights while treading on the wheel. This arrangement of rope and weight serves properly to control the animals during action, and dispense with the driver.

**FLY TRAP.**—Samuel F. McGown, Rockville, Ind.—The invention consists in a revolving wheel flue and a water tank containing water or other liquid. The face of the wheel is covered with molasses and water, or some other substance that will attract flies. The bottom of the flue covers a section of the wheel extending from or near the center to the edge of the wheel, and in width being equal to about half its length. The wheel revolves under the front edge of a flue or space, without disturbing the flies; but the back edge of the flue is dropped down so near the wheel that the flies, being disturbed, will rise from the wheel and fly upward toward the light, and, striking a plate glass, will drop to the water and be drowned. The wheel is revolved by clockwork, and is noiseless and continuous in its action.

**STENCH TRAP.**—Michael Gafney, Newark, N. J.—This invention consists in the employment of a large vessel in connection with the pipe, made in two sections, the one leading into it extending nearly to the bottom, and the other leading from it connected near the top; the said vessel having a large opening at the bottom for cleaning it out, said opening being closed by a

plug. The object of the improvement is to have a large trap in which all the grease will condense and be retained, instead of passing out into the pipes below and choking them up in inaccessible places, as is now the case with the small traps used in sinks, which become sufficed by the quantity of warm water passing through them to maintain the grease in such a fluid state that considerable quantities are carried out into the pipes below. The usefulness, and practical character of this invention, will be apparent to any plumber who inspects it.

**IMPROVED RAILWAY RAIL CHAIR.**—Thomas Donahy, Empire City, Nevada.—This invention has for its object to furnish an improved railroad rail chair, designed for use one length of a rail from switch chairs, to avoid the necessity of frequently cutting rails to allow the switch to work. By this construction, as the rails expand and contract, one or more of pieces may be taken out and put in to keep the space between the rails properly filled, and, at the same time, to prevent the rail next the switch from being pushed toward and crowding the switch rail, and thus interfering with its proper working. The chairs are cast right hand and left hand, so that the detachable piece may always be upon the outer side of the rail. If desired, the chair may be made with a right hand and a left hand opening, a bar or partition being between them to get the doubled length of extension and contraction, thus giving a greater scope for adjustment.

**TILT HAMMER.**—Patrick Breen, Auburn, N. Y.—The object of this invention is to produce a mechanism connected with a tilt hammer, of suitable kind for retaining the drop on its rebound, and prevent it from falling again after the main stroke. The pattering of the drop on its return stroke is, in many cases—as, for instance, in minting—injurious, spoiling the fine execution of the main fall. To avoid this, the inventor has arranged a peculiar cam, which acts on the hammer or drop so as to catch it with a short arm on the rebound, and prevent it from falling again. The invention consists in a new combination of mechanism, whereby the cam is enabled to act on the drop, and in a new general arrangement of parts for moving or locking the cam, as may be desired. This brief notice will enable those familiar with the subject to see that this is really an important improvement in tilt hammers for fine work.

**ROTARY STEAM ENGINE.**—George V. Atwood, Mount Hope, Ala.—This invention relates to an improvement in that class of steam engines which receive steam continuously. A piston wheel, provided with disks and pivoted within a revolving cylindrical wheel, in combination with the spiral groove in the cylinder, for the admission of steam, and a steam wheel, cylinder and piston wheel, combined and arranged in a peculiar manner, constitute the invention.

**LIGHTNING CONDUCTOR.**—Othniel Prestor, South Danville, N. Y.—While the inventor is aware that it is contended that the conductivity of a lightning rod is according to the area of its cross section, his own experience, which has not been very limited in the business of manufacturing and putting up lightning conductors, leads him to doubt the entire correctness of that theory. In practice, he claims to have found that surface has much to do with the conductivity of lightning rods. Conductors composed of broad straps of metal having great superficial area and but slight cross sectional area, have been employed with good results. With a view of increasing the superficial area, conductors have been made of woven wire, and also of braided or plaited wire in the tubular form. This lightning conductor is, however, made of wires twisted together around a core or tube, and is in outward form the same as a wire rope, and continuous from end to end, and may be of any required length. In twisting the wires around a solid core, the core is withdrawn, which leaves the conductor tubular. If twisted around a metallic tube, the tube is allowed to remain, which also leaves the conductor tubular. In either case the conductor is a tube composed of wires twisted together, and having the strength and flexibility of a wire rope when made without the interior tube, but is, of course, more stiff and rigid when made with the tube.

**WOOD BENDING MACHINES.**—Hiram McDonald, Shortsville, N. Y.—Thills of one horse vehicles, to be bent, being confined to a former (whereon they have been previously bent, in a machine, to form vertical curves at the ends), are placed on a bed former or die whereon the final bending is to be effected. This consists in a long thin plate of metal, having the upper edge provided with the configuration necessary for imparting the form to the under side of the thill, and has four (more or less) pairs of bars attached to its sides and extending above the edge considerably higher than the depth of the pieces to be bent. The upper ends are mortised for keys. The pair of bars, at the end of the die where the curve is greatest, are arranged radially to the axis of the curve for having a better action on the pieces than they otherwise would. The upper former or die also consists of a long thin plate about the thickness of the pieces to be bent, having its lower edge formed on the curved line required for the upper side of the thill; and also having a shoulder projecting downward from said line at the point where the front ends of the thills terminate. It also has a prolongation at this end, arranged in the vertical guide, and is connected at the center of the top to a vertically reciprocating bar of a press for forcing it down upon the wood pieces to be bent, the said pieces being placed on the lower die between the bars, and the said die being placed on a suitable bed against stops, which latter serve as guides in adjusting it to the right position to receive the die between the bars. The upper die has a notch in the lower edge, opposite each pair of bars, to admit of driving a key into said bars, above the said pieces, after they have been bent by said upper die and before it is raised, to key the pieces fast to the lower die, to be held until they become sufficiently set to retain their form when released. Both machines have been patented by the same inventor.

NEW BOOKS AND PUBLICATIONS.

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THE ANNUAL REPORT OF THE COMMISSIONERS OF PUBLIC PARKS, for the Year ending May, 1871. New York: William C. Bryant & Co.

This is a voluminous and handsomely printed document, making a royal octavo volume of 427 pages. It is profusely illustrated with photographs, lithographs, and wood engravings—the latter, however, on account of their inferior quality, detracting from, rather than adding to, the attractions of the volume. It contains a List of Commissioners and Officers—the Annual Report of the Department—Reference to the Central Park Map—a Legal History of the Department Jurisdiction—Report of the Comptroller—Topographical Description of the Central Park—Gifts, Devises, and Bequests—Lists of Animals—Reports of various Officers, etc. etc. The Report will prove of great value to those interested in the progress of our city improvements.

THE GREAT FIRES IN CHICAGO AND THE WEST. History and Incidents—Losses and Sufferings—Benevolence of the Nations, etc. etc. By a Chicago Clergyman. To which is appended a Record of the Great Conflagrations of the past. Illustrated with Maps and Scenes. Published by J. W. Goodspeed, Chicago, Cincinnati, St. Louis, and New Orleans. H. S. Goodspeed & Co., 37 Park Row, New York.

This is a book of remarkable interest, and which is certain to meet with a large sale. As a record of incident connected with the greatest fire that has yet visited an American city, it is worth preserving in every library.

A REVIEW OF THE THEORY OF NARROW GAUGES, as applied to Main Trunk Lines of Railway. By Silas Seymour, General Consulting Engineer. New York: D. Van Nostrand, Publisher, 23 and 27 Warren Street.

This pamphlet is undoubtedly one of the most able reviews of the narrow gauge question that has yet appeared. It expresses the views of one of the most clear headed and farsighted of our American railway engineers, which those who peruse the book will see coincide to the opinions we have, from time to time, expressed relative to the fallacy of most of the arguments in favor of narrow gauges. In another column, we publish some of the most pointed of Mr. Seymour's able arguments in favor of wide gauges; and though, as the title implies, these arguments are intended to apply to "Main Trunk Lines," they lose nothing of their force when branch lines are under consideration. The pamphlet is timely, and will do much toward correcting false ideas upon the policy of adopting in haste what we think is sure to be repented at leisure.

SUPPLEMENT TO BICKNELL'S VILLAGE BUILDER. Containing Eighteen Modern Designs for Country and Suburban Houses of Moderate Cost. With Elevators, Plans, Sections, and a variety of Details, all drawn to Scale. Also, a full set of Specifications, with Approved Form of Contract and Estimates of Cost. New York: A. J. Bicknell & Co., Architectural Book Publishers, 27 Warren Street. Price \$5.

The eighteen designs, some of which are handsomely colored, embraced in this book, are contributed by six architects of recognized skill and experience in village building. The designs are remarkably neat and tasteful and are so drawn and engraved, in connection with explanatory plans, elevations, and notes, that the peculiar adaptation of each to individual wants can be understood by any non-professional man of ordinary intelligence. The book is, therefore, an excellent guide for those about to build, as not only the essentials to handsome, comfortable village residences are comprised in the designs, but variety enough is presented to meet most requirements.

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- 120,809.—WASHER.—W. Arnold, Pawtucket, R. I.
- 120,810.—DRYING PAPER, ETC.—H. Dodge, Albany, N. Y.
- 120,811.—STOVE.—W. Doyle, Albany, N. Y.
- 120,812.—VARNISH.—T. J. Elliott, New York city.
- 120,813.—HORSESHOE.—D. Grim, Pittsburgh, Pa.
- 120,814.—BANDAGE.—J. G. Grocock, New York city.
- 120,815.—SEWING MACHINE.—T. J. Harper, Atlanta, Ga.
- 120,816.—INHALER.—R. B. Heintzelman, New York city.
- 120,817.—RUFFLER.—E. L. Howard, Malden, Mass.
- 120,818.—MOP HOLDER.—G. B. Isham, Burlington, Vt.
- 120,819.—PUMP.—S. W. Kelly, Nashville, Tenn.
- 120,820.—RIGGING.—J. C. Knowlton, Providence, R. I.
- 120,821.—BOTTLE STOPPER.—G. C. Lowe, New York city.
- 120,822.—PADLOCK.—S. Loyd, New York city.
- 120,823.—CANAL BOAT.—J. M. McMaster, Rochester, N. Y.
- 120,824.—GAS MACHINE.—W. T. McMillen, Richmond, Ind.
- 120,825.—STAND.—J. R. Palmenberg, New York city.
- 120,826.—THRASHER.—A. V. Pitts, Chicago, Ill.
- 120,827.—AUGER.—R. L. Priestner, Souder's Station, Md.
- 120,828.—GRAIN BINDER.—M. T. Ridout, Sun Prairie, Wis.
- 120,829.—ROOFING.—J. Siddons, Rochester, N. Y.
- 120,830.—CORK PULLER.—C. T. Simpers, Philadelphia, Pa.
- 120,831.—WASH BOARD.—A. D. Smith, Grafton, Ohio.
- 120,832.—POTATO DIGGER.—J. Smith, Ridgeville, Ohio.
- 120,833.—CHAIR.—P. M. O., A. S. Snell, Williamsburgh, O.
- 120,834.—KILN.—D. M. Sprogle, Annapolis, Md.
- 120,835.—SMOKE STACK.—D. B. Strope, Fort Wayne, Ind.
- 120,836.—DITCHER.—F. Taylor, Indianapolis, Ind.
- 120,837.—ENGINE.—N. W. Taylor, J. W. Brightman, Cleveland, O.
- 120,838.—ROLLING METAL.—L. Thomas, Pittsburgh, Pa.
- 120,839.—ROOT CUTTER, ETC.—G. Trump, Second Fork, Pa.
- 120,840.—STOVE.—J. W. O. Webb, Cedar Rapids, Iowa.
- 120,841.—PUMP.—N. W. Wheeler, Morrisseton, N. J.
- 120,842.—ORDNANCE.—J. Whitworth, Manchester, England.
- 120,843.—LET OFF.—A. J. Woodman, Indian Orchard, Mass.
- 120,844.—HOIST.—W. E. Worthen, New York city.
- 120,845.—HUB.—E. A. Archibald, Methuen, Mass.
- 120,846.—PROPELLER.—N. B. Baldwin, Chicago, Ill.
- 120,847.—WHEEL.—I. E. Bower, Bainbridge, Ga.
- 120,848.—WASHER.—J. Broyer, J. and H. Campbell, West Alexandria, Ohio.
- 120,849.—DASHER.—W. C. Broyhill, W. D. Sperry, Tremont, Ill.
- 120,850.—LAYING TILES.—M. A. Burnham, New York city.
- 120,851.—ROOFING.—O. W. Burritt, Weedsport, N. Y.
- 120,852.—SHOE, ETC.—F. P. Buzzell, Milton Junction, Wis.
- 120,853.—WATER METER.—C. Campeaux, New York city.
- 120,854.—LINK JOINT.—C. B. Carpenter, North Attleborough, Ms.
- 120,855.—SEWING MACHINE.—W. Chicken, E. S. Moulton, Chelsea, Mass.
- 120,856.—GOVERNOR.—G. W. Clark, Council Bluffs, Iowa.
- 120,857.—APPLE CORER.—S. C. Collins, Oregon, Mo.
- 120,858.—BEE HIVE.—T. S. Collins, H. Senseman, Tremont, O.
- 120,859.—EVAPORATOR.—J. Cook, Wellsville, N. Y.
- 120,860.—BRIDLE BIT.—H. M. Cornell, Brighton, Ill.
- 120,861.—REIN.—J. P. Crutcher, T. Y. Vanclleave, Cornersville Tenn.
- 120,862.—GUNPOWDER.—C. W. Curtis, London, England.
- 120,863.—CHUCK.—A. F. Cushman, Hartford, Conn.
- 120,864.—JACK.—A. A. Davis, Clark's Green, Pa.
- 120,865.—BED.—J. M. Farnham, Hartford, Conn.
- 120,866.—FIBER.—J. Felber, St. Louis, Mo.
- 120,867.—REFRIGERATOR.—J. W. Fisher, Islip, N. Y.
- 120,868.—HEMMER.—D. Forest, Eastport, Me.
- 120,869.—SAD IRON.—E. A. Franklin, Brenham, Tex.