

RECENTLY PATENTED INVENTIONS.

Engineering.

**STEAM BOILER.**—Jose D. De Benjumea, New York City. According to this invention a cylindrical shell has a fire chamber in its base, and two cylindrical shells of different diameters within and concentric with the outer shell. A spiral partition in the innermost shell forms an uptake for hot gases from the fire chamber, and there are sealing rings between the ends of the two inner shells forming a water-holding space in which is a spiral partition, there being also a spiral partition between the larger of the inner shells and the outer shell, forming a down-take passage for the products of combustion, there being a draught pipe at the lower end of the passage. On the top of the outer shell is a deflecting crown sheet and a steam dome.

**LOCOMOTIVE SNOW OR ICE FLANGER.**—Augustus F. Priest, Duluth, Minn. This flanger is an improvement on formerly patented inventions, and is arranged to permit the engineer in the cab to readily raise or lower the flanger blades and hold the knives in proper position relative to the rails. The flanger readily conforms to all irregular surfaces in the track, whether vertical or lateral, and gives an even depth of cut, the knives in no case touching the rails, but being perfectly locked and braced to clean the rails for every wheel in the train. By arranging the device directly behind the pilot, it is entirely out of the way and not liable to accidental injury by an obstruction.

**BOILER FUEL FEED.**—Adelbert O. Muller, Fremont, Neb. This is an apparatus comprising a supporting frame directly in front of the firing door, a fuel-carrying box fitted to slide on the frame, and pivoted bottom sections having pinions on their trunnions exteriorly of the box, there being a connection between the pinions to cause them to move in unison. To clean the fire box, the whole apparatus may be hoisted and swung away. The improvement is designed to facilitate the introduction of fuel in a very simple manner, distributing it uniformly in the fire box.

Railway Appliances.

**AIR BRAKE COUPLING.**—William A. and Benjamin S. H. Harris, Greenville, S. C. Combined with the coupling heads and their valves, according to this improvement, is a shifting regulating device set or adjusted by the movement of the train and operating to limit the movement of the valve-controlling devices variably under different conditions, so that in case a train is broken the valves of the detached car will be adjusted to set the brakes and the valves of the engine portion of the train will be adjusted to cause the engineer's whistle to blow. Locking devices are also provided to lock the couplings brought together. The coupling carrier is composed of sections or slides movable one upon the other, such movement operating to actuate certain movable parts.

Electrical.

**ELECTRIC RAILWAY.**—Francis Taylor, Charlotte, N. C. This invention relates to an underground system, and particularly to the arrangement of the brush or current transmitter and the conduit and current wire holding devices. The conduit may be readily applied to existing roadbeds where the rails rest on wooden cross-ties, and when in place can be easily repaired. The current transmitter has a supporting shank capable of being rotated and lifted vertically by the motorman on the car platform, the brush member being reversed or brought in line with the conduit slot, and lifted out of the slot when desired.

Mechanical.

**PLANING MILL MACHINERY.**—Charles Schöen, Rhinelander, Wis. This inventor provides a device for setting up matchers for planing mill machinery, whereby the beader knives may be quickly and conveniently adjusted to perform their work. By the aid of the device any ordinary mill hand may set up a matcher for any predetermined style of moulding in a very short time. The device may be fitted to any four-sided slotted matcher cylinder top or bottom. The device is detached from the machine when the latter is in motion, but may in an instant be placed in position to properly adjust the knives, and removed.

**EDGER.**—John Cox, Victoria, Canada. For properly cutting parallel edges on shingles, boards, etc., this invention provides shifting devices actuated by the forwardly moving article to be edged to set the saws transversely on their spindle according to the width of the article. The articles are carried forward by an endless feed belt, and a locking device actuated by the moving article prevents outward movement of the edging tools and yet allows inward movement.

Agricultural.

**CULTIVATOR.**—Thomas J. Payne, Tecumseh, Oklahoma Ter. This is an implement especially adapted for the cultivation of listed corn, and has runners so formed and located that they will fit closely in a furrow, the runners having teeth capable of effectively pulverizing the soil. There are knives at the rear of the cultivator to cut off the outward edges of the furrow, or that portion where the weeds usually start first to grow. The construction is simple and inexpensive and the machine is light of draught.

**PLANTER.**—Lewis F. Miller, Canton, N. C. This is a very simple machine, requiring no castings, and the parts of which may be easily duplicated by any mechanic. It is designed to open the furrow, drop the seed and a portion of fertilizer if desired, and cover the seed. In the seed wheel the pockets may be made large or small, as required by the work, the adjustment being effected in an easy and convenient manner.

Miscellaneous.

**CYLINDER PRINTING PRESS.**—William M. Marriner and William N. Kant, Birmingham, Ala.

This is a press adapted to be run by foot power, is designed to be quite inexpensive, and to be especially suited for use in small newspaper offices. The type bed is on a stationary slightly inclined frame to which is hinged a swinging frame on which an impression cylinder rolls back and forth, trailing inking rollers being connected with the shaft of the cylinder. When the paper is fed the cylinder frame is permitted to drop and the cylinder rolls down across the bed, the printed sheet being dropped on a delivery board. By the operator stepping on the treadle the free end of the frame is lifted, shifting the incline and causing the cylinder to roll back. The press is operated, when once started, by simply stepping on the treadle, the inking being automatically performed.

**BICYCLE DRIVING MECHANISM.**—S. J. Collier, deceased (P. B. Turpin, Washington, D. C., administrator). This is a two-speed mechanism, enabling the wheel to be conveniently geared for speed or geared down for power while the machine is running. The crank axle, on which is a spur pinion, is mounted eccentrically in a larger axle, and a combined chain sprocket wheel and internal toothed wheel is mounted concentrically upon the larger axle and in gear with the pinion on the crank axle, there being means for locking the two axles together and for temporarily unlocking them and at the same time locking the large axle to the frame.

**PICKING MACHINE.**—Sylvanus D. Mosher, Storm King, N. Y. This invention provides a simple apparatus which may be applied to a traction engine or other vehicle to pick up the surface of the ground so that the loosened material may be raised by a steam or other shovel, the machine picking on the surface or in the bottom of a ditch. The machine comprises a swinging frame at the outer and inner ends of which are crank shafts with which series of picks are operatively connected.

**ICE CUTTING MACHINE.**—Martin Fey, Tamaqua, Pa. This improvement relates particularly to means for guiding the machine and for cutting ice blocks of different widths. A dependent frame is arranged alongside the cutter, vertical guide posts being laterally adjustable toward and from the cutter in the frame, and a horizontal bar sliding vertically on the posts, while aligned guides attached to and pendent from the bar are adapted to run in a cut or kerf in the ice. The guides may be raised and held above the surface of the ice or lowered to a greater or less depth in the kerf.

**WORK STAND.**—Clinton E. Lincoln, Morehead City, N. C. This stand embodies a cabinet for scissors, buttons, thimbles, etc., with a number of drawers, serving also as a table, and having a thread rack on which spools may be held under proper tension for the unwinding of the thread without tangling, the support for each spool being provided with a thread cutter. The stand is also provided with a removable work basket, which may be revolved.

**MEAT TENDERER.**—William G. Mumma, Warrensburg, Mo. This is a simple and inexpensive tool having a handled head with grooves in its margin, depending cutters being secured on the under side of the head. To prevent the clinging of the meat to the cutters, spring wires cross each other beneath the head, the wires engaging the grooves and having their ends secured to the head.

**GRATE.**—Samuel L. Jeter, Montgomery, Ala. This grate is more especially designed for use in open fireplaces, permitting the quick and thorough removal of the ashes to insure improved combustion. Journalled in the grate frame is a basket of grate bars each having at its outer end a crank arm extending upward in front of the basket, there being a lever and connecting rod for the crank arms to shake the grate bars.

**LUBRICATOR.**—Charles P. Hogue and Joseph W. Smith, Portland, Oregon. This is a device designed to forcibly feed the desired amount of lubricant to a bearing and consists principally of a piston in an oil-containing vessel to force the lubricant out. The device is adapted to conveniently feed a large quantity of the lubricant by hand to the part to be lubricated when desired, and the lubricator reservoir is readily refilled.

**BOOK SUPPORT.**—Charles H. Hay, Carmi, Ill. This device comprises a frame formed at its middle with trunnions journalled in suitable bearings attached to a desk or other convenient support. The frame is counterbalanced, and shelves are held on its free ends, a spring-pressed locking device locking the frame in any desired position, the device being more especially designed for supporting large books, such as court records, abstracts, ledgers, etc., in such manner that the open book has the top leaves at a level.

**WINDOW.**—John B. Grattarola, New York City. This invention provides a simple mechanism to permit of readily sliding the sashes up and down and to swing them inward to give access to both faces to facilitate cleaning them. The sash is pivoted at one side on a sliding bar or guide piece, and adapted to be locked at its other side to a removable part of the sash guide-way.

**POCKET GUARD.**—Patrick Curran, Romeo, Ill. This is a device for securing a pocket book, watch, or similar article in a pocket, the article being readily removed when desired, but so secured that it must be pressed downward when taken, thus giving notice to the wearer. It consists of a strip of metal bent upon itself to form opposing members, one member having lugs engaged by pins, and both members having interlocking tongues. The watch or other article is attached to the device, and the pins engage the pocket.

**INDICATOR FOR PIANO STOOLS.**—Carlo Brizzi, New York City. This is a device to indicate whether or not the stool is at the proper height for the player. From the lower end of the threaded spindle supporting the seat extends a square rod on which is a pinion held in a suitable bracket support, and the pinion is in mesh with gear-teeth on a dial, placed horizontally or diagonally to be most conveniently seen by the player, the dial being marked with graduations, and being turned by the pinion as the seat is moved up or down, its position being at all times indicated by a pointer.

**LOOM PILE WIRE HOLDER AND CUTTER.**—Victor Vizet, New Rochelle, N. Y. According to this improvement the cutter is made in one piece with the sheath to receive the end of the wire, whereby the pile wire holder is made much stronger than heretofore, and the article is simpler to manufacture.

**MAKING CHLORINE.**—James J. Powers, Cortlandt, N. Y. This inventor has devised an apparatus for making chlorine gas and similar substances, in which a substance has to be treated by an acid, and in which the acid is measured to secure proper proportion of weights and volumes, a safety appliance being provided to prevent explosion. An open top measuring tank is connected by a pipe with a storage tank into which air may be forced to push out the acid, which a pressure tank receives as it is discharged by gravity from the measuring tank, a generating still being connected by a pipe with the pressure tank.

**DENTAL CLAMP.**—Joseph M. Strout, Portland, Me. This is an improvement upon a formerly patented invention of the same inventor, designed to afford a practically perfect adaptability of the retaining arm of the device to irregular surfaces of teeth, and secure any desired tension upon the arm. Means are also provided whereby the gum at the neck of the tooth will be protected while the root is being trimmed preparatory to applying a crown.

**ATOMIZER.**—Charles Wagner, New York City. This device consists principally of a cylinder in which is a valved suction pipe, a spring-pressed piston, the piston rod forming the discharge pipe for the liquid. The atomizer may also be arranged for use as an oiler or as pump, or for the purpose of ejecting any desired liquid.

**FILTERING POT OR URN.**—William A. Van Deusen, Brooklyn, N. Y. This invention affords improved means of preparing coffee, tea or other decoctions. In the top of the pot is a strainer bowl and beneath it is a drip bowl, a paper filter being arranged loosely between them, water being poured on the contents of the strainer bowl for ordinary filtering. When the liquid is to be boiled, the pot has a removable false bottom forming a steam chamber from which a tube communicates with the strainer bowl in such a way that the hot water will be forced up through the tube and percolated over the contents of the strainer bowl.

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SCIENTIFIC AMERICAN BUILDING EDITION.

AUGUST, 1895.—(No. 118.)

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1. A Colonial house at Scranton, Pa. Perspective elevation and floor plans. Cost complete \$4,500. E. G. W. Dietrich, architect, New York City. A simple yet pleasing design.
2. A cottage at Residence Park, New Rochelle, N. Y. Two perspective elevations and floor plans. Architect, Mr. G. K. Thompson. New York City. A unique example for a cottage dwelling.
3. Perspective and floor plans of a Colonial cottage at South Orange, N. J. Built by H. E. Matthews, Orange, N. J. A neat design, with some novel features.
4. A Colonial house at Summit, N. J. Perspective elevation and floor plan. Architects, Messrs. Child & De Goll, New York City.
5. A cottage in the suburbs of Brooklyn, N. Y., erected at a cost of \$7,500 complete. Perspective elevation and floor plans. Architects, Messrs. J. C. Cady & Co., New York City. An artistic design.
6. Two perspective elevations and floor plans of "Lover's Dell," a residence recently erected in New Jersey. A pleasing example for a modern Colonial dwelling. Architect, Oscar S. Teal, New York City.
7. A residence at Sea Side Park, Bridgeport, Conn. Two perspective elevations and floor plans. An exquisite design. Architect, Mr. W. R. Briggs, Bridgeport, Conn.
8. A residence in the Colonial style, recently erected at Chester Hill, Mt. Vernon, N. Y. Three perspective elevations and floor plans. A picturesque design. Lewis H. Lucas, architect, New York City.
9. Ground plan and perspective view of Holy Trinity Church, Harlem, N. Y. Architect, Mr. Wm. A. Potter, New York City.
10. A residence at Montclair, N. J., being an additional view to those of the same house published in the May issue.
11. Miscellaneous contents: Waterbury electric heat regulator, illustrated.—A sanitary bathtub, illustrated.—Finishing floors.—Pompeian bath room.—Seasoning of stone.—Improvement in warm air furnaces, illustrated.—An improved domestic water service system, illustrated.—An improved door check and spring, illustrated.—The wood of most uses.—The hollow handle glass cutter, illustrated.

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Notes & Queries

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 References to former articles or answers should give date of paper and page or number of question.  
 Inquiries not answered in reasonable time should be repeated; correspondents will bear in mind that some answers require not a little research, and, though we endeavor to reply to all either by letter or in this department, each must take his turn.  
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 Scientific American Supplements referred to may be had at the office. Price 10 cents each.  
 Books referred to promptly supplied on receipt of price.  
 Minerals sent for examination should be distinctly marked or labeled.

(6603) H. J. M. says: Can you tell me the proper process of making nitrate of silver? A. To make nitrate of silver out of pure silver, place the silver in a beaker and pour into it three-quarters of a fluid ounce of strong nitric acid sp. gr. 1.4 for every ounce of metal. The beaker is heated till the whole of the silver dissolves. The solution is then poured into an evaporating basin, and the excess of acid driven off by boiling. The operations should be conducted in the open air. The salts left may be recrystallized by dissolving in the smallest possible quantity of boiling water and allowing it to cool. The crystals of pure nitrate of silver will gradually form. The salt remaining in the mother liquor can be recovered by evaporation. To prepare chloride of gold, the copper in the coin must first be eliminated. The gold coin is put into a beaker, and a mixture of three parts of hydrochloric acid and one of nitric acid is poured into it and heat applied until the metal is dissolved. The excess of acid is then expelled by evaporation. The impure gold chloride, when free from acid, is dissolved in boiling water, and a cold saturated solution of protosulphate of iron added, till a dark precipitate of pure gold is no longer produced. The precipitate of gold must be poured on a filter and washed by pouring boiling water constantly over it, till the wash water no longer produces a precipitate with a solution of barium chloride, proving that the gold is free from the excess of sulphate of iron. The gold is again dissolved in nitrohydrochloric acid, the solution evaporated to dryness, the latter part of the operation being carried on slowly to prevent spurting. The yellow crystalline chloride of gold thus prepared should be preserved in a well stoppered bottle or a sealed tube, as the salt is very deliquescent.

(6604) X. Y. asks: Will you please define and illustrate by an example the difference between momentum and vis viva? Which of the two represents the force with which one body strikes another? A. Momentum is the weight of a body multiplied by its velocity usually in feet per second, and denominated in foot pounds. Vis viva is a term used by early writers to designate the force of the momentum of a body in terms of its work and now designated as energy. It is now obsolete as a mechanical expression.

(6605) C. B. says: Please tell me how to make the composition for printer's rollers?  
 A. Best glue..... 10½ lb.  
 Black molasses or honey..... 2½ gal.  
 India rubber dissolved in oil of turpentine..... 1 lb.  
 Venice turpentine..... 2 oz.  
 Glycerine..... 12 oz.  
 Vinegar..... 4 oz.  
 Purified India rubber only is used. To recast add 20 per cent new material. The old home receipt is, 2 lb. best glue, soaked over night, to 1 gal. of New Orleans molasses. Will not recast.

INDEX OF INVENTIONS

For which Letters Patent of the United States were Granted

August 13, 1895,

AND EACH BEARING THAT DATE.

[See note at end of list about copies of these patents.]

- Air compressor, H. A. Pedrick..... 544,548
- Air compressor, hydraulic, J. H. Champ..... 544,456 to 544,459
- Aluminum oxide, extracting, A. W. Nibelius..... 544,319
- Axle skein, J. Salay..... 544,325
- Bag supporting device, H. Cotter..... 544,461
- Bath. See Medical dry bath.
- Bath brush apparatus, M. J. Lyons..... 544,362
- Batteries used on vehicles, support for electrical, T. Froggatt..... 544,430
- Bearing, ball, R. F. Hall..... 544,406