well timbers, and around the pipe is an externally threaded tubular screw on which is a beveled cogwheel resting on a collar, the wheel having a hub threaded to fit the screw, and being driven by a pinion on a shaft from any suitable power. Above the tubular screw is a wedge-shaped collar, the wedge entering a clamp by which, as the wedge is forced upward, pivoted dogs clamp the pipe with a pressure corresponding to the pressure on the wedge. The apparatus is strong and inexpensive, may be readily applied, and enables a pipe to be quickly raised.

LOCK.—William W. Davis, East Orange, N. J. This inventor has devised an improvement in that class of locks in which the mechanism is so arranged that when the door is open no parts of the lock will project in such a manner as to catch the person or clothing of those passing near. This lock has no protruding parts, is positive in operation, and little likely to get out of order, and has novel features of internal mechanism.

STERILIZATION.—Albert Hussener, Gelsenkirchen, Germany. For the sterilization of materials in bottles, jars, etc., this inventor has devised an apparatus by which to mechanically close and make perfectly tight against the outer air, by means of a plain flat cover, vessels of any shape intended for preserving articles of food, the vessels and their contents having been previously sterilized by heating in a hot water bath. The apparatus not only effects the closure, but during the process of sterilization exhausts the air from the interior of the vessels, the outside air not being able to penetrate to the interior of the vessels during or subsequent to the process of sterilization.

SIPHON VALVE. — Frederick Booth, Concord, N. H. A valve body is, according to this invention, fitted to slide on the fixed outlet pipe, and is formed at its lower end with inlet openings for the water, and at its upper end with a vent extending downward outside of the valve body to within a short distance of the bottom of the tank. The invention relates to devices for flushing water closets, urinals, etc., and the valve is very effective and noiseless, and arranged to automatically drain the tank whenever the valve is pulled, at the same time using the discharge pipe for an overflow pipe.

KEY RING AND CIGAR CUTTER.—Edward B. Aiguier, Newark, N. J. This combination device is strong and simple, very ornamental, and is arranged to prevent accidental disengagement of a key when the cutter is being used. The ring has its ends spaced apart and is formed of two hinged sections, a cutter formed of a fixed and a movable section being secured to one of the ring sections, its movable section engaging the other ring section.

SCREEN.—George W. Cross, Pittston, Pa. In making screen segments, this invention provides a means whereby the screening surface may be formed integrally with ribs, by upsetting or otherwise treating one of the faces, the ribs being so produced that the screen surface may be smoothly and evenly laid on the spiders or framing, the ribs abutting against the spiders. The ribs and screen segments are also so formed that the ribs may be given more or less pitch, as desired, without interfering with the perfect laying of the ends of the segments upon the spiders.

SHUTTER FASTENER. — Joseph W. Johnson, Point Pleasant, N. J. This improvement comprises two curved bars, each with a pivot hole and an end extension to serve as a handle, and on the convex side two notches or grooves, with a locking device having at one end a transverse perforation to receive a fastening screw, the other end being adapted to engage any of the grooves. The fastening is also a bower, and may be applied to any ordinary blind or shutter, holding it open in such a way that it cannot become loosened by the action of the wind. It is also adapted to hold the blinds at an angle to the window to enable them to act as an awning.

IRONING BOARD ATTACHMENT.—Robert N. Boston, Chestertown, Md. This is a device for firmly holding the neck band and bosom of a shirt while being ironed, and is adjustable to neck bands of different sizes. In using this improvement the neck band is held distended and all wrinkles removed, the adjacent portions of the bosom being also held smooth.

STOVE PIPE JOINT.—Josiah E. Smiley, Smiley, Ohio. This is an improvement designed to facilitate the detachment of sections of pipe when desired. One of the pipe sections has notches in one end and intervening elastic portions provided with spiral ribs, the other section having corresponding spiral grooves arranged oppositely, the grooves and ribs corresponding in arrangement and pitch.

FISH TRAP.—Bernice Wood, Benson, N. C. This invention provides a trap designed to catch a large or small quantity of fish at each operation, and is so arranged as to collect the large fish and allow the small ones to pass through. The invention is also designed to furnish a method of utilizing swamp or waste lands for fish culture, especially land in which small running streams or gulleys are found, which can be easily turned into ponds by damming.

GAME BOARD.—Jay F. Beaman, Antwerp, N. Y. This is an improvement in checker or draught boards, and the playing blocks or spaces are hexagonal, with blank triangular spaces between them. The corners of the playing field are similar, thus avoiding the "double corner," and rendering impossible the well known "parallel move" in such corner, so that a game cannot be made a draw or tie. The game is played in very much the same manner as checkers, but the invention provides for a large sized board for use by a number of players.

MUSTACHE CURLER. — Charles C. Burgio, Brooklyn, N. Y. This is a small and inexpensive device, to be applied in pairs to the ends of the mustache, to curl them without heating, the device being applied to the dry mustache and allowed to remain in position for a few minutes.

NOTE.—Copies of any of the above patents will be furnished by Munn & Co., for 25 cents each. Please send name of the patentee, title of invention, and date of this paper.

NEW BOOKS AND PUBLICATIONS.

PRAY'S STEAM TABLES AND ENGINE CONSTANTS. By Thomas Pray, Jr., C.C. and M.E. New York: D. Van Nostrand Co. London: E. & F. N. Spon. 1894. Pp. 85. 8vo, cloth. Price $2.

The present work is uniform with "Twenty Years with the Indicator." The author is the well known consulting engineer and electrician of Boston. The value of a table, especially in those relating to steam, is in its accuracy, and the amount of labor necessary to prepare the present work must have been very great. The result is a collection of tables in which nothing is offered which has not been proved. In this book we have in a compact form the most useful data for computations for boiler testing, duty performance of pumping engines, and answers to the many inquiries which spring from the use of the indicator. No theories of any kind are considered or expressed intentionally. Each table is accompanied with explanatory notes showing how problems are worked out in connection with the tables. The work includes steam tables, Regnault's tables, heat of steam, pressure temperature, volume and density of steam, factors of evaporation, hyperbolic logarithms, engine constants, etc.

The American Annual of Photography and Photographic Times Almanac for 1895, of the Scovill & Adams Company (New York), has attained the dignity inherent to a volume of over 500 pages. It has a great variety of information useful to the photographer, either amateur or professional, who wishes to keep pace with the times, including also a carefully compiled selection of standard formulas and useful recipes. The two hundred or more illustrations which embellish its pages likewise present some fine examples of photo-engraving and photo-mechanical printing.

SCIENTIFIC AMERICAN BUILDING EDITION.

NOVEMBER, 1894.—(No. 109.)

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1. Elegant plate in colors showing a cottage at Bronxville, N. Y., recently erected for B. L. Clark, Esq. Two perspective elevations and floor plans. Estimated cost $5,000. Mr. William A. Lambert, architect, New York City. A modern and pleasing design.
2. Plate in colors showing the residence of John Cottier, Esq., at Bensonhurst, L. I. Three perspective elevations and floor plans. Cost $6,750 complete. A good example of Colonial architecture. Messrs. Parfitt Bros., architects, Brooklyn, N. Y.
3. A dwelling at Edison Park, Ill. Cost $1,700. Architect, Mr. F. W. Langworthy, Chicago, Ill. A model design for its class and cost. Two perspective elevations and floor plans.
4. A very attractive residence recently erected for A. C. Garsia, Esq., at Flatbush, L. I. Two perspective elevations and floor plans. Mr. John E. Baker, architect, Newark, N. J. A modern design.
5. An $800 summer cottage built for A. R. Doten, Esq., at Casco Bay, near Portland, Me. Perspective elevation and floor plans. Mr. Antoine Dorticos, architect, Portland, Me.
6. Perspective elevations and floor plans of a handsome residence recently completed for George W. Catt, Esq., at Bensonhurst, L. I. A very picturesque design. Cost $8,100 complete. Mr. S. S. Covert, architect, New York.
7. A church at Short Hills, N. J., built entirely of rubble stone. Estimated cost $6,000. Perspective elevation and floor plan. Messrs. Lamb & Rich, architects, New York City.
8. The house of Francis I. at Abbeville, France.
9. A stable and conservatory attached to the residence of John Cottier, Esq., at Bensonhurst, L. I. Perspective elevation and ground plan. Messrs. Parfitt Bros., architects, Brooklyn, N. Y.
10. A residence at Ardmore, Pa., in the Queen Anne style. Perspective elevation and floor plans. Cost complete $6,750. Architects and builders, Messrs. J. B. Cornell & Sons, Philadelphia, Pa.
11. A cottage at Edgewater, Ill., erected for Edgar Smith, Esq. A unique design in the Colonial style. Cost $7,800 complete. Two perspective elevations and floor plans. Mr. G. W. Maher, architect, Chicago, Ill.
12. An attractive cottage at Bath Beach, Long Island, N. Y., recently erected for G. W. Snook, Esq. Two perspective elevations and floor plans. Mr. Percey Emmett, architect, Bath Beach, Long Island.
13. Miscellaneous contents.—Wood pavement in London.—Preservation of wood.—Methods of constructing chimney flues and pipes at Paris, illustrated.—The passing of red brick.—Long distance house moving.—Carved and fancy mouldings, illustrated.—A new sash lock.—Automatic heat regulation in houses, etc., illustrated.—Woodwork vs. flame.—Curiosities about wood.—Cement water tanks.—An improved hot water heater, illustrated.—How to cool a cellar.—A new woodworking machine, illustrated.—An improved stage bracket iron, illustrated.—Party walls.—Architectural metal ornaments, illustrated.

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Names and Address must accompany all letters, or no attention will be paid thereto. This is for our information and not for publication.

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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6313) G. M., Los Angeles, asks: What proportional size shall I make the pressure jet and throat of a water jet pump to raise water 12 feet, with a fall of 60 feet? To what fractional height of pressure jet can water be forced by a jet pump, and about what is the percentage of efficiency? Where can I find directions for designing jet pumps? A. The relative areas in a water jet for the conditions as stated should be as 1 to 1·75 with the nozzle drawn to a thin edge and the neck piece with curved or bell-shaped internal surface. The nozzle should be placed just within the commencement of the curve of the neck piece. If well made with smooth frictional surfaces, water can be raised to from one-sixth to one-half the height of the supply head, by varying the proportions of the areas of the nozzle and neck. The quantity raised will vary as the ratio of the areas and inversely as the height. The efficiency depends upon the provision for eliminating the friction of the water in the pipes connecting the ejector, ran ing from 50 to 60 per cent. We have no literature on this subject.

(6314) A. C. P. says: I take the liberty to ask for the name of inclosed insect. They have appeared here within the last thirty days in great numbers, and as no one seems to remember of having ever seen them before, they have aroused my curiosity. So would be very thankful for a name for same, also a general explanation of their sudden appearance. A. Answer by C. L. Marlatt, Acting Entomologist United States Department of Agriculture.—The insect referred to is what is generally known throughout the West as the box elder bug (Leptocoris trivittatus, Say). Of late years this insect has been enormously abundant every fall thoughout the upper Mississippi Valley, collecting in great numbers on the sunny sides of buildings and frequently gaining entrance into dwellings in such numbers as to be a serious annoyance to housekeepers. Throughout the summer it may be found in different stages of development, chiefly on the box elder (Negundo aceroides), upon juices extracted from the bark and trunk of which it subsists. In the late summer it may be frequently noticed in dense patches on the trunks of these trees. It also occurs, however, upon other trees, particularly ash. Later, it leaves its summer breeding places and seeks hibernating quarters for the winter, crawling into crevices in walls and outbuildings or wherever it may receive protection from the cold and storms. Wherever they are collected in masses as described they may easily be destroyed by crushing with a stiff brush or by dousing with scalding water or by the use of any of the oily insecticides in very strong dilution.

(6315) B. A. J. says: Will you kindly inform me how halation may be prevented? A. Halation is the term given to the halo which often surrounds windows in photographs of interiors, and blocks up the details. It is, too, often found to occur in landscapes taken in a strong light, the tops of trees and other objects which are surrounded by strong light being lost in a mist, or entirely obliterated. It is caused by reflection from the back of the plate, and occurs most strikingly in plates of the cheap class, which are thinly coated. With very thickly coated plates it rarely occurs, except when taking brightly lighted interiors. To prevent it the back of the plate may be coated with a mixture of powdered burnt sienna, ½ oz.; gum arabic, ½ oz.; glycerine, 1 oz.; water, 5 oz. This is readily washed off before development. A special ready-made preparation is sold for this purpose by Tylar, if preferred. Another way is cut dead black needle paper, or black American cloth, to the size of the plate, coat it with glycerine, and squeegee it on to the back of the plate when placing it in the slide.

(6316) W. C. P. asks how gelatine sheets are made. A. Dissolve fine glue or isinglass in water so that the solution when cold may be consistent. Pour it hot on a plate of glass (previously warmed with steam and slightly greased) fitted in a metallic frame whose edges are just as high as the wafer should be thick. Lay on the surface a second glass plate, also hot and greased, so as to touch every point of the gelatine while resting on the edges of the frame. By its pressure the thin cake is rendered uniform. When the glass plates have cooled, the gelatine will be solid and may be removed. It can then be cut into disks by punches, etc. It can, of course, be colored by adding suitable coloring material, aniline colors, for instance.

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AND EACH BEARING THAT DATE.

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