

attached about a yard of India-rubber tubing communicating with a vessel placed above, containing distilled water, the pressure of a column of water being thus obtained. The India-rubber tube being filled with water and adjusted to the percolator, the wire clamp attached to the lower portion of the tube is removed, when a slow and steady flow of water commences; after the lapse of an hour and a half, sufficient displacement will have been effected, the water having risen considerably above the marc, and with it will have been removed the retained tincture, which forms a dense stratum upon its surface. On dipping a glass rod to this upper stratum and applying it to a flame, the discolored tincture burns nearly as readily as the percolated portion, indicating its comparative strength of spirit. Nevertheless, diffusion will have taken place to a slight extent, and is perceptible by the gradual shading off of the highly colored tincture into the water beneath it. To finish the tincture, its measure was brought up to 19½ ounces, the addition of the requisite quantity of surface liquid on the percolator, the product filtered, and made up to a pint with proof spirit. Thus having measured the product of percolation, I know exactly how much surface liquid to draw off to bring the measure up to 19½ ounces, which is done by means of a glass siphon, and having mixed the two products, filtered by the automatic method through thin 3-inch paper, and made up to a pint with proof spirit, have produced a tincture prepared at a comparatively small loss.—*Pharm. Journal*.

Large Yields of Grapes.

The vineyards of the Napa Valley, California, averaged the last year about eight tons of grapes to the acre. In one instance three acres of Malvoisies yielded ten tons to the acre. The grapes were sold for \$25 a ton. Twenty-eight acres in San Joaquin County produced 300 tons of grapes, two sorts, Mission and Black Prince, the average price which was \$27 a ton. Choice grapes grown on mountain sides brought \$30 a ton. In both these cases the vines are old. A yield of ten tons to the acre from three-year-old Sultana vines is reported in one instance in Solano County. The Sultana is a seedless grape, in high repute for winemaking.

ANOTHER BRUSSELS EXHIBITION.—It is stated that in consequence of the great success of the Belgian National Exhibition, two projects are now under discussion—one for holding at Brussels in 1883 or 1884 a Universal International Exhibition, and the other for organizing a Universal International Educational Exhibition.

NOVEL STEAM BOILER.

The special feature of the new boiler shown in the accompanying engraving consists in the transverse water tube in the fire box. Its obvious effect is to aid materially the raising of steam of high pressure in a short time. The boiler may be set vertical or inclined, the latter position being preferred. This boiler is the invention of H. Berchtold, of Zurich, Switzerland. The illustration is from the *Allgemeine Zeitschrift für Textil-Industrie*.

MECHANICAL INVENTIONS.

Mr. John F. Garatt, of Spencer, N. Y., has patented an improved windmill, so constructed as to adjust itself to the force of the wind, the automatic adjustment being effected by two weights at diametrically opposite sides of the wheel which are acted on by centrifugal force.

Mr. Gavin Telfer, of Detroit, Mich., has patented a combined hammer and screw-driver which is simple and convenient. It consists of a hammer containing an adjustable screw-driver in the lower end of its hollow handle.

An improved sash lift and automatic sash lock, which locks the sash automatically as soon as the same has been lowered to rest on the sill, but unlocks it as soon as pressure is applied to the lift for the purpose of raising the sash, has been patented by Mr. William W. Sweetland, of Edwardsburg, Mich.

An automatic attachment to lathes for cutting rubber and other rings has been patented by Mr. Joseph T. Ridgway, of Trenton, N. J. The object of this invention is to make the lathe work more quickly and accurately by substituting automatic mechanism for mechanism operated by hand, thereby increasing and improving the product of the lathe and diminishing the cost of the product.

An improved water and steam wheel has been patented by Mr. Thomas R. Simmons, of Houma, La. The inventor uses a wheel that consists of a hub provided with wings that extend to an outer inclosing cylinder, the wheel being fitted to a shaft contained in a chamber through which the fluid passes.

Messrs. T. H. Scott, A. G. De Pontee, and H. E. Wyman, Crown Point Center, N. Y., have patented a machine for cutting wood fiber for paper pulp. The invention consists of a novel knife and the combination thereof with a revolving head for cutting wood fiber to be used in making paper pulp.

An improved electric alarm, which is designed to be set off to give a continuous warning by the breaking of an electric circuit, has been patented by Mr. Lambert F. Fouts, of Greenfield, Iowa.

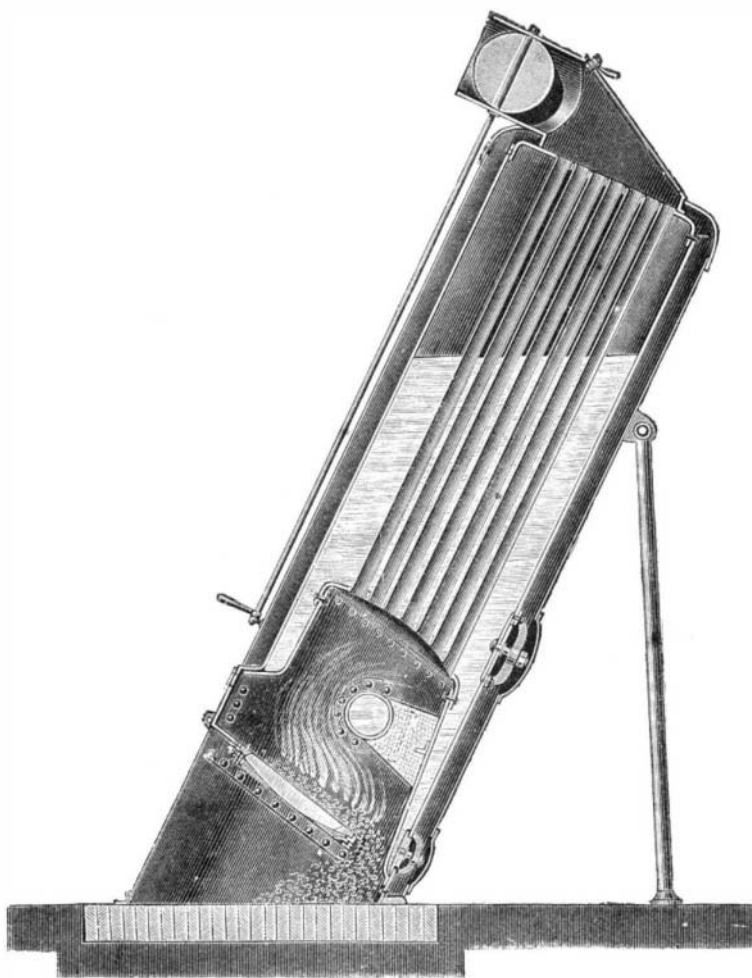
BOTTLE COCK FOR EFFERVESCING LIQUIDS.

In using aerated water, champagne, or other effervescing liquids, especially in sick rooms where small quantities are



IMPROVED BOTTLE COCK FOR EFFERVESCING LIQUIDS.

required in frequently repeated doses, it is undesirable to open a fresh bottle every time, and quite impossible to preserve for any length of time the briskness of an opened bottle. To meet such cases the simple apparatus shown in the annexed engraving has been devised. It consists of a hollow corkscrew mounted upon a little stand, and so arranged that the outlet may be opened by a slight pressure on a lever. The corkscrew is passed through the cork and the



NOVEL STEAM BOILER.

bottle inverted on the stand. The pressure of the gas in the bottle insures the delivery of the liquid, and none of the gas can escape until the liquid is all drawn off. Thus the effervescent quality of the wine or water is preserved to the end no matter how slowly the liquid may be used. Obviously the device is also serviceable in saving the trouble and waste incident to the common method of uncorking bottled liquids of this character.

RECENT INVENTIONS.

Mr. William C. Beattie, of Taunton, Mass., has patented an improvement in butter dishes, which is applicable to all kinds of analogous covered dishes, such as pickle casters, jewel cases, sugar dishes, baking dishes, etc. The object of the invention is to provide a neat and tasteful means for raising and suspending the cover in elevated position above the dish.

In an improved boot heel, patented by Messrs. Riley D. Plunkett and Jason P. Rollins, of Little Rock, Ark., the heel is made detachable and attachable. Both the sole and heel have heel plates, which connect by dovetail tongue and groove, and are maintained in mutual engagement by a single screw.

An improved gatherer and ruffler for sewing machines has been patented by Mr. James B. Farrar, of Wilmington, N. C. It gathers a piece of fabric either at its edges or throughout its entire surface, or will gather or shirr a piece of fabric on a ground work, or gather one piece of fabric to another, and at the same time attach a ribbon, tape, or braid, at the seam, all in a single operation.

Egyptian Obelisks.

There are thirty of them at the present time scattered over Europe. Rome has eleven, four of which are higher than our New York obelisk. The highest of the Roman obelisks, which is also the highest in Europe, stands before the Church of St. John Lateran. The obelisk in the piazza of St. Peter's is 82 feet 9 inches high. Both of these were mounted on high pedestals. The pedestal of the St. John Lateran obelisk is 44 feet high, making the entire height of obelisk and pedestal 150 feet. The pedestal of the St. Peter's obelisk is a trifle less than 50 feet high, making the whole height of the monument 132 feet 2 inches.

The Egyptian Obelisk now in New York.

At a recent meeting of the New York branch of the United States Naval Institute, held at the Brooklyn Navy Yard, Lieutenant Commander Gorringer described the means employed to remove the obelisk from its site in Alexandria to the United States. His remarks were illustrated by models. The obelisk was buried, he said, to a height of nine feet above the pedestal in a mass of debris and sand. The age of obelisks can be determined with considerable accuracy by the depth of the surrounding accumulations. There were two plans to choose from in removing the obelisk from its upright position. One was by securing the segment of a huge wheel to the obelisk, with two guys fastened to the shaft behind. Then the obelisk would be tilted so as to throw the weight on the guys, and excavations being carried on under the base it would slowly turn over. This was the simplest plan, but as the nature of the ground was unknown, and as rocks would very likely render the excavation difficult or impossible, the idea was adopted of mounting the obelisk like a cannon upon a kind of gun carriage. This carriage was made in Trenton and taken to Egypt in pieces. The obelisk was carefully incased in timber, and four derricks were erected. The iron plates of the trunnions, weighing six tons each, were hoisted into place on the sides of the obelisk and bolted together by bars running across, being also supported by rods running up and down. Then the carriage was placed underneath, and the trunnions just fitted into the rests on the carriage. The different parts were securely fastened by bolts, then the obelisk was lifted bodily and turned over of its own weight. Trusses were placed on each side, with steel bands running to the heel and end of the shaft, in order to keep the obelisk from breaking in two when suspended by the middle. It was top-heavy, the part above the trunnions weighing four tons more than that below, and therefore came down upon the high cradle prepared for it with a tremendous crash. Some of the timbers were broken, but special preparation had been made for this, and a kind of cushion of timbers was ready to receive the shaft.

Stacks of timbers were placed under the obelisk. When it was recumbent it was lifted by hydraulic jacks, and the timbers were taken out one by one until it was lowered to the level of the pedestal. A deep pit or canal had been dug underneath, and a huge box or caisson was in readiness large enough to float the obelisk out to sea. Here a mishap occurred which has been wrongly said to have been maliciously caused. The caisson had to go 210 feet to reach the sea. It went 20 feet and then stopped. For the remainder of the way it had to be pushed by a pressure of 120 tons inch by inch to the sea. Afterward it was found that between the ways and the cradle were several pieces of iron and

stones, which probably found their way in accidentally. The sea was very rough, and once the obelisk was sunk, but it was finally towed seven miles and put in a dry dock. It was laid diagonally to the keel of the ship, in the side of which a large port had been opened. By the aid of a kind of railway formed of 6 inch channel iron and 5¼ inch cannon balls the obelisk was moved forward, being turned when half way into the ship so as to go parallel with the keel, and