

Lake Michigan White Fish.

For the past three years the catch of white fish in Lake Michigan has been small, owing, the fishermen say, to the prevalence of northeast winds. Recently the fish took a sudden departure from the southern end of the lake, abruptly cutting off the supply from the Chicago market. This unusual movement is attributed partly to an extraordinary influx of "sheepheads," but more to a sudden and remarkable change in the temperature of the water, from extreme cold lasting well into July, to a very high temperature for Lake Michigan. The white fish live principally upon worms and small shell-fish, and their chief enemy is the Mackinaw trout.

IMPROVED STEAM GENERATOR.

The steam generator shown in the accompanying engravings is of the class in which the water is contained in the interior of the tubes. Two horizontal tubes of large diameter serve the purpose of mud drums, and two similar tubes located at the top of the boiler form the steam and water drums. The mud drums and the water drums are connected by vertical or slightly inclined heating wrought iron lap-welded tubes, which are secured in the lower drums by simply screwing them in, in the usual way, but they are secured in the upper drums by means of a screw fitting, D, which is threaded both externally and internally, as shown in Fig. 2. The internal thread engages with the external thread on the end of the tube, and the external thread engages with the internal thread in the upper drum, B. To increase the size of the upper end of the tube sufficiently to permit of passing the fitting, D, over the tube, and make a perfect connection, the end of the tube is enlarged either by welding a ring on the end of the tube or by swaging the tube at the end so as to increase the diameter. Mr. F. P. Franke has secured a patent for this method of connecting the tubes with the drums.

In putting together one of these boilers a first and last heating tubes are put in place by first passing the enlarged end through the opening in the upper drum, then screwing the plain end into the lower drum. Then the fitting, D, is screwed over the tube and into the upper drum. It will be noticed that this boiler has no seams nor rivets.

This method of putting in the tubes has many advantages over right and left hand threads and other methods of making connections between tubes and drums, as it affords a ready means of introducing the tubes, and admits of readily removing any one of them without difficulty and without disturbing the others. The inventor informs us that ordinary wrought iron pipe is preferred for the tubes, as it is thicker than common boiler tubes and is stronger and more durable.

This boiler may be made of any height desired. It may be used for generating steam for power or heating purposes, and for hot water heating; and is now in successful use for all of these purposes, giving the highest satisfaction.

Any kind of fuel may be used with this boiler, and there is no possibility of the heating surfaces becoming covered with ashes or soot. It is very economical in the use of fuel, and is free from the danger of destructive explosion.

The heating surface being very large in proportion to the water contained in the boiler, steam may be raised quickly, and the circulation being good, steam is generated very freely. It may be shipped in sections and is readily set up.

Further information will be furnished by the manufacturers, Messrs. Renwick & Franke, 605 Main street, Buffalo, N. Y.

Novel Plating Process.

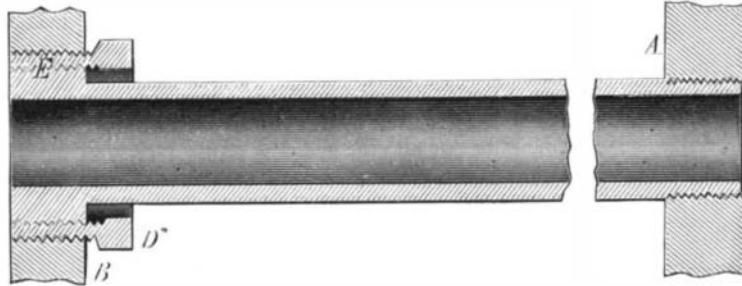
At a recent meeting of the Royal Dublin Society, says *The Ironmonger*, Dr. J. E. Reynolds gave some illustrations of a process he has discovered for coating metallic and other surfaces with a brilliant and strongly-adherent layer of galene. The plating of a tube of brass, and another of glass, was effected at the meeting by simple immersion in a solution which speedily deposited a beautiful mirror-like layer on the material. This layer readily assumed its final polish by friction with a wash leather, and it bore some severe treatment without giving way. The color of the deposit is darker than pure silver, but brighter than oxidized silver, and the coated surface can easily be made to assume a peculiar bluish bloom, which enhances its beauty. Dr. Reynolds exhibited a number of specimens in iron, steel, brass, glass, porcelain, ebonite, and other articles, which had been subjected to the action of the atmosphere for a period of more than two months in some instances, and all withstood this severe test completely without showing tarnish or rust. Dr. Reynolds mentioned that the cost of his galene plating process did not exceed one-

eighth that of the nickel plating. Moreover, any intelligent workman could quickly become his own plater, as the use of electricity is altogether avoided.

MISCELLANEOUS INVENTIONS.

An improvement in mail bags has been patented by Messrs. Thomas O. Bennett and Samuel Trenbath, of Clifton, Mich. This invention consists in a hinged metallic frame attached to the mouth of the bag, and in a lock used in connection therewith, whereby provision is made for holding the mouth of the bag open when desired and for securely locking it when closed.

Mr. Charles S. Philips, of Brooklyn, N. Y., has patented an improved sweat house for curing tobacco, which is so constructed that the tobacco, while packed in cases, can be

**FRANKE'S STEAM GENERATOR.**

subjected to the vapor of water at any desired temperature, and thus moistened without being made wet. The invention consists in constructing a tobacco sweat house of a metal-lined tray, an interior wooden bottom, and steam pipes, and a double walled sweat house or chamber having a slotted or slat floor, an inclined roof, and upright cleats attached to the inner surface of its side walls.

Mr. William C. Thornton, of Castle Rock, Mo., has patented a device by means of which the weighing of canned fruit, vegetables, etc., can be conveniently and quickly effected.

Mr. John B. Clopton, of Elgin, Texas, has patented a mechanical telegraph sounder adapted for the use of learners for practicing the manipulation of a telegraph finger key. It consists in a sounder wherein a finger lever and sounding lever are combined together with a spring in such manner that the action is very delicate and sensitive, and produces a sharp clear sound without the use of a battery.

An improved fan has been patented by Mr. Max Rubin, of

Mr. Jacob C. McCarty, of Edray, W. V., has patented a compound for saturating charcoal, coke, or coal to be used as fuel, consisting of a solution of chloride of sodium, sulphate of iron, and nitrate of potash.

An improved music chart has been patented by Mr. James W. Chambers, of Baltimore, Md. The object of the invention is to have music on the piano and organ rendered in all its completeness and purity of harmony, etc., in whatever key the music is originally written, without the necessity of knowing how to read music as usually written.

Messrs. Eugene H. and George F. Conant, of Camden, N. Y., have patented an improved knockdown rocking chair, so constructed that it may be closed into compact shape for transportation and may be conveniently put together for use.

Mr. James H. Mackintosh, of Paterson, N. J., has patented an improved spindle and bolster for spinning frames, so constructed that the spindle can be driven at a greater velocity than is practicable with spindles constructed in the usual way, and which will allow the driving band to be put on without detaching the whirl or bolster.

In the plumbing arrangements of houses it is common to fit a pan or safe beneath the wash basins and water closets to catch water from leaks and overflows, and fit such safe with a pipe to the cellar for discharging the water. Such pipes have been trapped or sealed at their lower ends by a tank of water to prevent foul or damp air from ascending; but such seal requires attention to supply water, and it is not practicable to apply a metal valve, as the pipe is seldom used and the valve rusts to its seat or becomes otherwise fixed and useless. Mr. Thomas Clements, of Jersey City, N. J., fits such pipes with a trap or valve which prevents entrance of air without preventing escape of water at any time.

Mr. George Wagner, of Swanville, Pa., has patented a door-intended for use in connection with a pen, stable, or other building in which swine, sheep, or other small animals are housed; and the object of the invention is to allow ingress or egress to the animals at proper times, and also to provide for readily removing the door when desired.

An improved bee-hive has been patented by Mr. William S. Blaisdell, of Randolph, Vt. The object of the invention is to keep the bees at a uniform temperature, supply fresh air without a draught, give convenient space for surplus honey frames, afford easy access to the bees, and protect their food.

Mr. William Ford, of Great Bend, Kan., has patented a novel device to be placed on the top of a stove or furnace for holding and burning hay, straw, corn stalks, weeds, etc. It consists of a sheet metal drum closed at the bottom by peculiarly constructed dampers, and having a small central hole in its top for the introduction of a rod or poker for the purpose of pushing down or compressing the contents of the burner.

Mr. Franklin W. Lamb, of Hydesville, Cal., has patented an improvement in that class of gates that are operated by a system of cords and pulleys, and the object is to enable the gate to be easily opened and closed, and to support it in all positions.

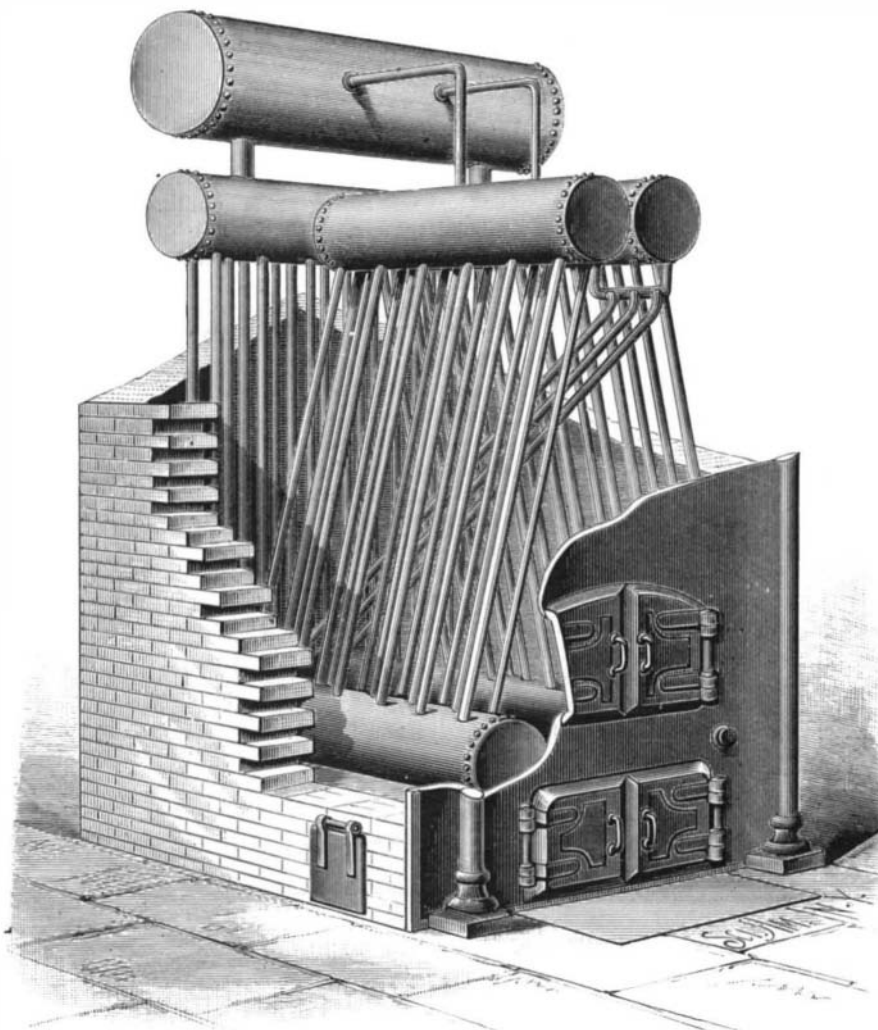
Mr. Francis N. Still, of Lake City, Ill., has patented an improved gate pivot which is simple and effective. It consists of a conical socket secured in the top of the gate post, and containing a ball supporting a conical stud of a hood-shaped disk, upon which disk the top longitudinal bar of a balanced swinging gate rests.

Mr. William H. Rogers, of Amherst, Nova Scotia, Canada, has patented a fishway so constructed that the fish will readily find the entrance, and it is capable of being used at all stages of water. The invention consists in constructing the fishway with inclined partitions having openings and flanges at their upper ends and with openings and slides at their sides; also, in constructing the fishway with its lower end connected with an opening in the lower part of the dam, and extending it up stream with a gradual rise.

An improved device for adjusting and fastening transom sashes, greenhouse sashes, and other window sashes, so constructed that the sashes may be opened and closed easily, however heavy they may be, and held securely in any desired position, has been patented by Mr. Justus H. R. Prall, of Elmira, N. Y.

A light portable folding table for paper-hangers' use, which may be readily carried in the hand, and which is of sufficient length and strength to accommodate the strip of paper and bucket of paste, has been patented by Mr. William Trilk, of La Crosse, Wis.

Mr. Louis Prince, of Jersey City Heights, N. J., has patented an improvement in the class of invalid beds having a permanently attached bowl or funnel.

**FRANKE'S STEAM GENERATOR.**

New York City. This invention relates to that class of fans in which the web is secured upon two hinged handles, and consists in connecting the handles by a double-jointed hinge, in recessing the handles to receive the folded web, in combining stiffening strips with the hinge pivots and the web, and in combining with the handles a catch for fastening the handles together when the fan is closed or open.