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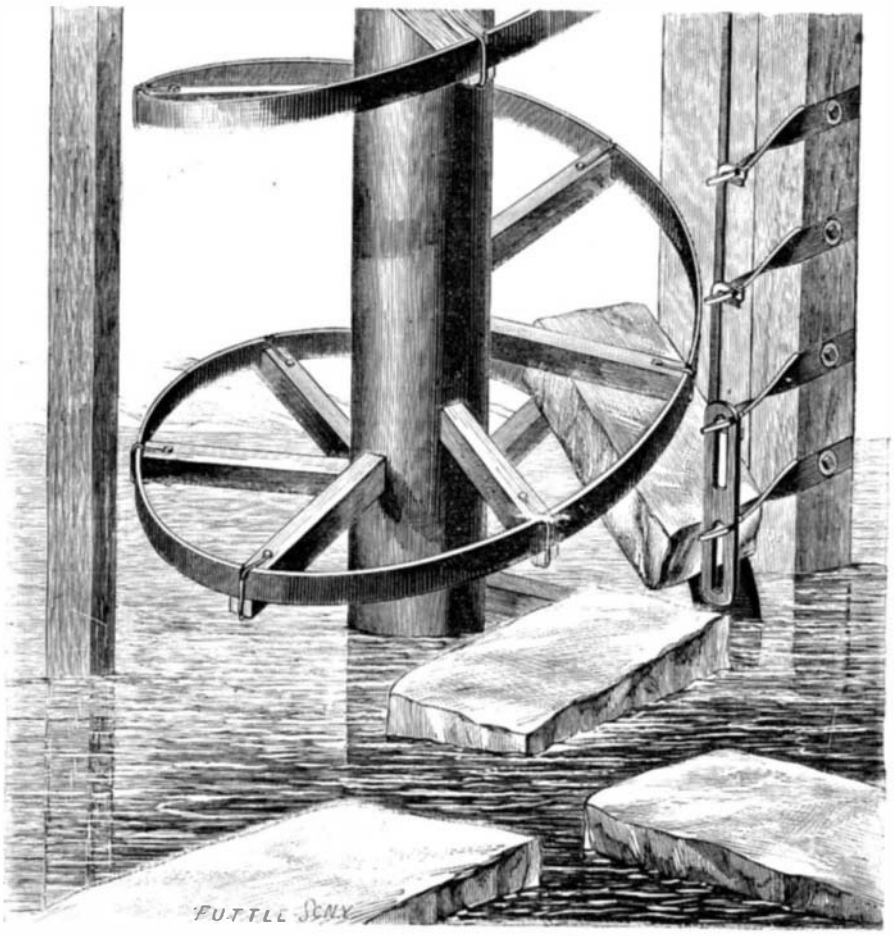
Method of Raising Ice.

The gathering of the ice crop in the Northern States is a business of great importance, and notwithstanding the invention and use of ice-producing machines, promises to keep its present position of value. Several means for raising and conveying the ice from the lake or pond to the storage house are already in operation, some of them requiring each block of ice to be attached to "cant-hooks" or some similar device and then to be raised by some modification of the pulley; or an endless belt or inclined railway is used, one end reaching below the surface of the water and the other reaching the highest portion of the building in which the ice is to be stored. In this latter case it is difficult to adjust the lift to the hight desired at the time to raise the blocks.

The plan shown in the engraving seems to be well adapted to the work of raising ice to any required hight, and discharging it at any required point as the ice house may be gradually filled. The contrivance is an upright shaft the lower end of which turns in a step located at the bottom of the pond, and the upper end in a box or bearing. Spokes radiate from this upright shaft in an ascending spiral, to the outer ends of which a continuous plate of iron is secured, which follows the lead of the spokes, thus forming a spiral. The lower portion of this spiral —that below the surface of the water—is made into a platform, or rather is much wider than the mere edge of the spiral itself. This is to aid in the landing of the cakes of ice for a start. One of the uprights which connect the top and bottom of the frame in which the shaft turns, has a series of horizontal arms which support a vertical guide, against which the block of ice presses as it is gradually lifted by the rotation of the spiral. The lower section of this guide is slotted where it rests on the arms to allow it to rise and fall, while the others between each arm can be removed as desired.

The operation is as follows: The machine rotated by manual labor, horse, or steam power, the blocks of ice are floated over the lower portion of the spiral to that side of the frame on which the guides are situated, and if brought in from the side shown in the engraving, as the direction the blocks are taking—on the right —the lower slotted section of the guide lifts to allow the block to pass under, and when it has passed falls again to place. The block then being held in position by the side of the frame, the guides, and the rim of the spiral, is gradually raised by the rotation of the latter until it reaches the hight where the chute is affixed for conveying the ice to the house. The guides being, as before stated, in sections, any portion may be removed to allow the ice to be discharged at any elevation desired, as the house is gradually filled.

A patent for this improvement was obtained through the Scientific American Patent Agency, May 21, 1867, by Henry Little, of Middletown, N. Y., whom address for additional particulars.



LITTLE'S ICE HOIST.

Method of Utilizing Heat in Steam Boilers.

The grand object of engineers, mechanicians, and scientists in the construction of boilers, is to ascertain a method by which the heat generated by the combustion of fuel can be made to yield its full quota of power. Approaches toward that end have been made by inventors, but in many cases the attempts have been too ambitious—the inventors have essayed too much at one time. Probably the advances to be made hereafter will be those in which adjustment of parts, and the improved arrangement of the apparatus, will have more real and actual value than the invention or introduction of novel boilers constructed on unphilosophical principles.

The nest of boilers shown in the engraving is designed to utilize a larger portion of the heat than is possible by boilers set in the ordinary way. It will be seen that the bridge wall back of the furnace is made inclined and curved to correspond with the curvature of the shell, thus compelling the flame to partially envelope the boiler, and strike the shell of the next boiler at a hight above any possible deposit of sediment. So in succession each boiler is partially surrounded by the heated products of combustion by means of the curved flues. In the lowest portion of these flues depressions are formed to receive the ashes, soot, etc., which are removed by means of doors in the wall of the furnace.

The furnace can be made smoke-consuming by introducing atmospheric air at those points of the flue of the highest elevation between the boilers, a portion of the smoke being thus consumed as it passes from one boiler to another, so that by the time it reaches the smoke stack it contains nothing combustible.

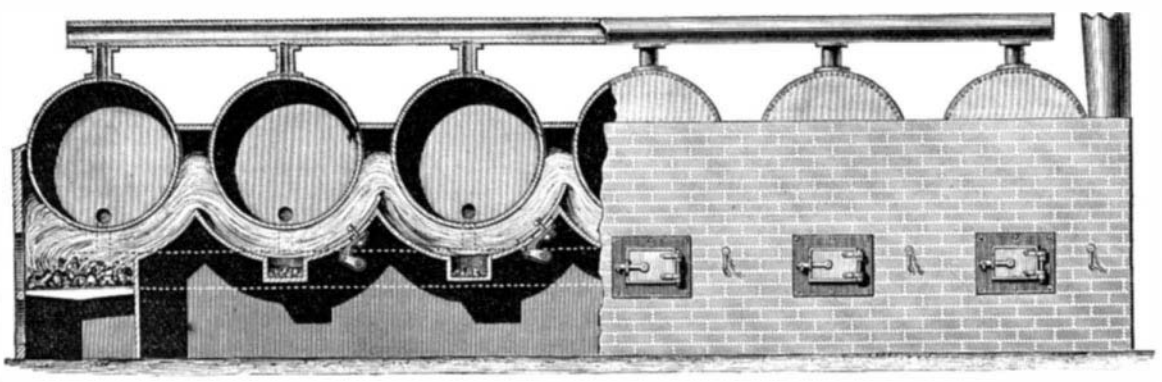
There are curved slides attached to the sides of the flues between the boilers, except between the first pair, and they are worked by means of cranks projecting through the sides of the furnace. These are intended to regulate the draft according to the changes of the weather, and to aid in the combustion of the gases. The dotted lines show the supply pipe which is connected to each boiler by a goose-neck.

This boiler has no internal flues or tubes and it is therefore less liable to unequal contraction and expansion than others. It is very much shorter in proportion to its diameter than the ordinary cylindrical boiler. The inventor says:

"The currents of water in these boilers are each independent of the others, so that one portion not generating steam will have no effect on the rest. In other boilers if you have not sufficient heat to generate steam in the end furthest from the fire the water so returning with the current will have to be heated again, which takes more fuel than would otherwise be required to generate steam sufficient for the use of the engine, and with the irregularity of the blaze you cannot cover all of your fire surface more than half of the time, consequently this intense heat will burn that portion of the boiler that is exposed to the only direct attack."

"There is no part of the boilers exposed to the heat but is readily got at and seen when they are empty, making repairing an easy job if such be needed. The fire is built on a grate surface in width nearly the length of the boilers, and is confined to the same width while playing on the surfaces, and being so concentrated it will have a greater penetrating force, not being weakened or separated by cylindrical, tubular, or globular forms usually made use of in all other steam generators."

This boiler and furnace was patented through the Scientific American Patent Agency Oct. 2, 1866. For rights, etc., address McClure and Ellis, Terre Haute, Ind.



McCLURE'S COMBINATION BOILER.

Soldering Iron and Steel.

M. Bernard Lietar, of Rue de Houblon, Brussels, has just patented an improved composition to be employed in welding or soldering iron or steel. This composition consists of 1,000 parts of filings of iron or steel, according to whether the composition is intended to weld or solder iron or steel; 500 parts of borate of soda (borax); 50 parts of balsam of copaiba, or a resinous oil; and 75 parts of ammoniacal salt (hydrochlorate, carbonate, or other). A mixture is made of the whole, which is then calcined and reduced to powder. To make use of the powder thus obtained M. Lietar proceeds as follows:—Suppose two pieces of iron, or two pieces of steel, or even a piece of iron and a piece steel, should be required to be soldered or welded one to the other. The composition is placed between the two pieces at the place to be united; the whole is put in the fire until the pieces have attained a temperature which permits the powder to become fused, which happens when the pieces have attained a cherry-red temperature. The pieces are then withdrawn and welded in the usual way. If the dimensions of the pieces, or any other obstacle, hinders their being put in the fire together they may be welded as follows:—Heat first one of the pieces to a cherry-red temperature at the place where the soldering or welding is to be made, then place the composition and apply the second piece, heated this time to white heat, then weld the whole together. This method is particularly applicable to the repair of large pieces.—*Mechanics' Magazine.*

The Planets on Show.

The months of Jnly and August are usually more favorable for the observance of atmospherical phenomena than any others during the year, on account of the great clearness of the atmosphere, besides the certain fixed laws of the universal system. At some periods, however, some exceptional phases of the planetary cycle display themselves beyond their customary attributes, and these periods occur in regular rotation. The present year will be singularly rich in such atmospherical phenomena; as, beside, a remarkable shower of meteors which is confidently calculated to take place on, or about the 10th of August, two of the planets are now exhibiting certain curious features of their orbit. For the last few days the planet Saturn has not only been peculiarly brilliant, but has shown its rings to be greatly increased in size. This can be readily observed with the naked eye, and with the aid of a telescope the rings are seen to be beautifully distinct. The flattened sides of these belts or rings of Saturn are now turned toward the earth, and that is the reason why they can be observed so clearly. The phenomenon will probably last for some days longer, and the curious would do well to take advantage of the opportunity they now have of witnessing it. Any ordinary telescope will do; but with a good field glass the belts come out as distinctly as possible, standing out, as it were, in relief. On the 21st of August the planet Jupiter will present the appearance of being moonless to European observers, although this sight cannot be witnessed in America, because Jupiter will be on the same plane as the horizon. The reason of this eccentricity in the arrangements of the planets is that three of its moons will be revolving across its axis and one behind it.

The meteoric display promised us on the 10th will be, according to the calculations of M. Leverrier, one of unusual brilliancy; in fact it is the one which delayed reaching us last November. The month of August is always rich in falling stars, consequently something out of the common must be of singular type and will attract great attention. These