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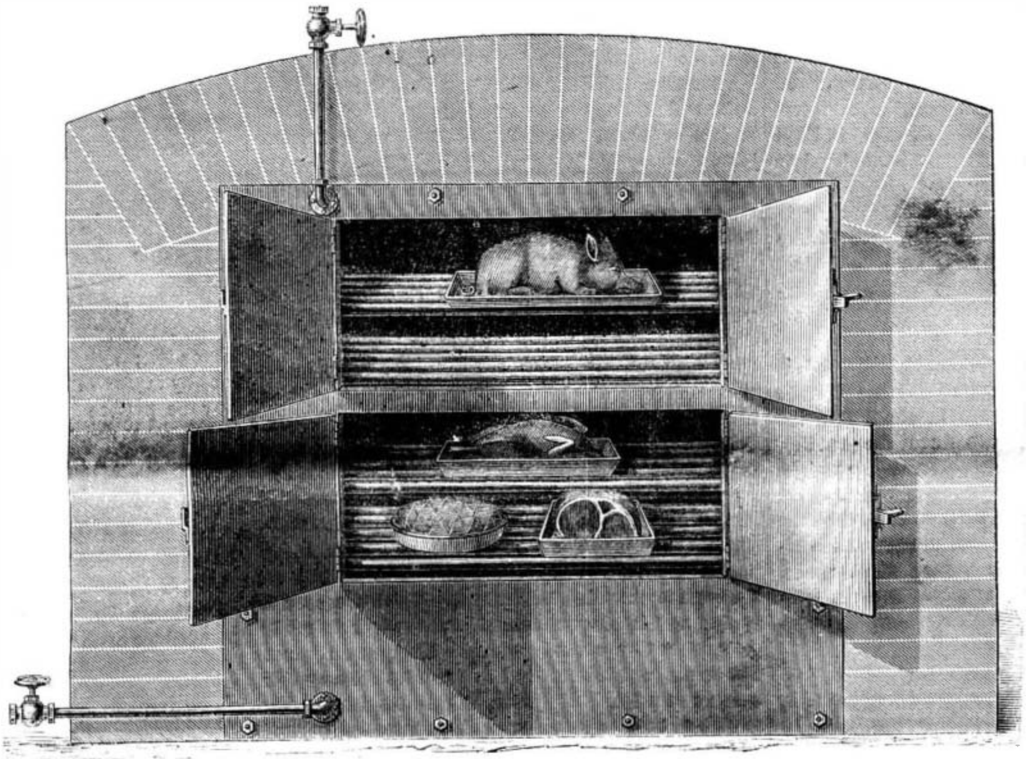
Improved Steam Oven.

All housekeepers and cooks know that it is difficult to regulate the heat of ovens when coal or wood is used, and that great care is necessary to prevent the food from burning. In this engraving a steam oven is illustrated—one wherein the heat is furnished by steam at a moderate pressure, no fire being used in connection with the oven itself. Steam at 35 and 40 pounds pressure has a temperature of 280° and 290°, which is sufficient for all culinary purposes.

The details are as follows:—A brick arch is built to receive the steam pipes of any capacity required. A close coil of pipes is laid at the bottom, and an open coil over it and connected with it which fills the oven. The pipes of the open coil are the shelves on which are placed the articles to be baked, as shown in the engraving. The interior is lined with tin which, at the top and ends, has a space between it and the wall of about three inches, and does not extend quite to the bottom of the oven. At the top it is perforated with holes, letting the heated air pass above it, and in contact with the brick work. As it becomes cooled it descends along the sides, and passing below the lining into contact with the pipes again, rises, and thus establishes constant circulation of hot air. The front of the oven is constructed of tank iron with doors, and is secured to the brick work by anchor bolts laid in for the purpose. It is so made for convenience of building and repairing the coil. The steam enters the coil at the top and passes out at the bottom, to the trap, or onward to do other work.



WHITLOCK'S STEAM OVEN.

A small upright boiler and engine, to do the work, and one of these ovens attached, would make a portable bakery of great value in all cities.

One of these ovens, two feet by six feet base, and five and a half feet high, may be seen in operation, capable of baking for a thousand people, at St. Luke's Hospital, corner of 54th street and Fifth avenue.

It was patented through the Scientific American Patent Agency on Jan 23, 1866. Rights for sale on favorable terms. Address for further information J. G. Whitlock, No. 954 Sixth avenue, New York.

DESCRIPTION OF THE SUSPENSION BRIDGE AT CINCINNATI.

In 1856, John A. Roebling, of Trenton, N. J., who contructed the Niagara suspension bridge and many smaller ones of similar character, made a contract to build a suspension bridge across the Ohio River, connecting the cities of Cincinnati and Covington, at an estimated cost of $1,750,000. The *Cincinnati Commercial* gives a complete and interesting account of the structure, from which we make some extracts:—

THE PIERS,

The foundation of the piers are of Indiana limestone, and the piers themselves are of sandstone. The dimensions at the base are eighty-six feet by fifty-two feet; at the top (two hundred feet above) seventy-four feet by forty feet. There are thirty-two thousand perches of masonry in this piece of stonework. About one hundred feet above the bottom of the foundation is the floor of the main archery, across which the floor of the main bridge will run. Here the tower has the form of an arch from seventy-five feet, from floor to keystone, and forty feet in the clear at the base.

THE ABUTMENTS AND ANCHORAGE.

Roadways of massive stonework, in the form of arches a portion of the way, lead from the first approaches to the bridge on either side—from Front street, in Cincinnati, and from Second street, in Covington. These abutments form the shore supports for the immense iron work of the links by which the cables are connected with the anchorage far beneath the ground surface, and below the shore ends of these abutments. There are in each of these abutments thirteen thousand perches of stone—twenty-six thousand in the total, which added to the sixty-four thousand in the piers or towers, give a grand total of ninety thousand perches of stone work in the bridge. From abutment to pier there is a distance of two hundred and eighty-one feet. From the beginning of the roadway on Front street, Cincinnati, and from Second street, Covington, there is, of course, a gradual ascent along the abutment and shore portion of the suspension to the pier, and then comes the slight descent and ascent produced by deflection of water suspension. Nearly fifty feet below the surface of the ground, under each side of both abutments, embedded in masonry, are the huge anchor plates—the primary supports of the bridge. These are large, square and flat cast iron plates into which the ends of the anchor bars are fastened, and they are covered with the masonry of the entire anchorage and abutments. These anchor bars are connecting pieces between the shoe, to which the end of the cable is fastened, and the anchor plates. There are between each shoe and plate eight or nine lengths of anchor bars, sixteen side by side in each length, and each bar or strip ten feet long, nine inches wide, and one and one-third inches thick. The reader may imagine the size and strength of the sockets and cross bars used in connecting these lengths with each other, and with the shoe of the cable and the anchor. And all this iron work is repeated four times, once on each end of each cable. The cost of the masonry is about forty per cent of the entire cost of the bridge.

THE CABLE.

The abutments on both sides are now covered and surrounded with workshops, wherein nearly two hundred men are employed in forming the cables, finishing the iron work, and getting out the wood work for the bridge. There are but two cables, one on each side, running over a saddle on the top of both towers and ending in a shoe on each side. The work of making the cable is all done in temporary workshops on and about the anchorage of the Cincinnati side. In the yards around may be seen hundreds of coils of wire all from the manufactory of Johnson & Nephew, Manchester, Eng. This wire is No. 9, and is one-eighth of an inch in diameter. In each of these hundreds of coils there are from twelve to sixteen thousand of feet. Every inch of wire receives three coats of linseed oil before it enters the wire shop where the wire is spliced. In splicing it is filed, nicked, and wrapper with fine wire. In this shop there are a score of large drums, upon which the wire is coiled after being spliced.

Near the end of the abutment are wheels, receiving power from an engine below, by which an endless wire rope, an inch in diameter, is made to move in a complete circuit the entire length of the bridge, from shore to shore, on both sides. With this rope move the traveling wheels, one on each side—one going over with its load of wire while the other returns empty—the machinery being reversible, of course.

The traveling wheel is a curiosity. Seen from the shore or the river it looks much like a mammoth spider crawling along its web up to its den—the webs being aptly represented by the confusion (apparent) of wire supporting the temporary foot bridge, and the cable strands already completed. The traveling wheel, when it starts out from this side, is half encircled by one of these one-eighth inch wires--already secured to the shoe upon which the strand is being formed. As the wheel moves, revolving as the rope glides along, the lower wire remains stationary as it is laid along the strand, while the wheel, in paying out, pulls the upper portion along. The reader may illustrate this by taking a long piece of thread, tving the ends together to make it continuous, fastening the thread by a pin, at one end of the table, placing an empty spool within the circuit thus formed, throwing the thread over the spool and back