

**The Manufacture of Cheap Artificial Teeth.**

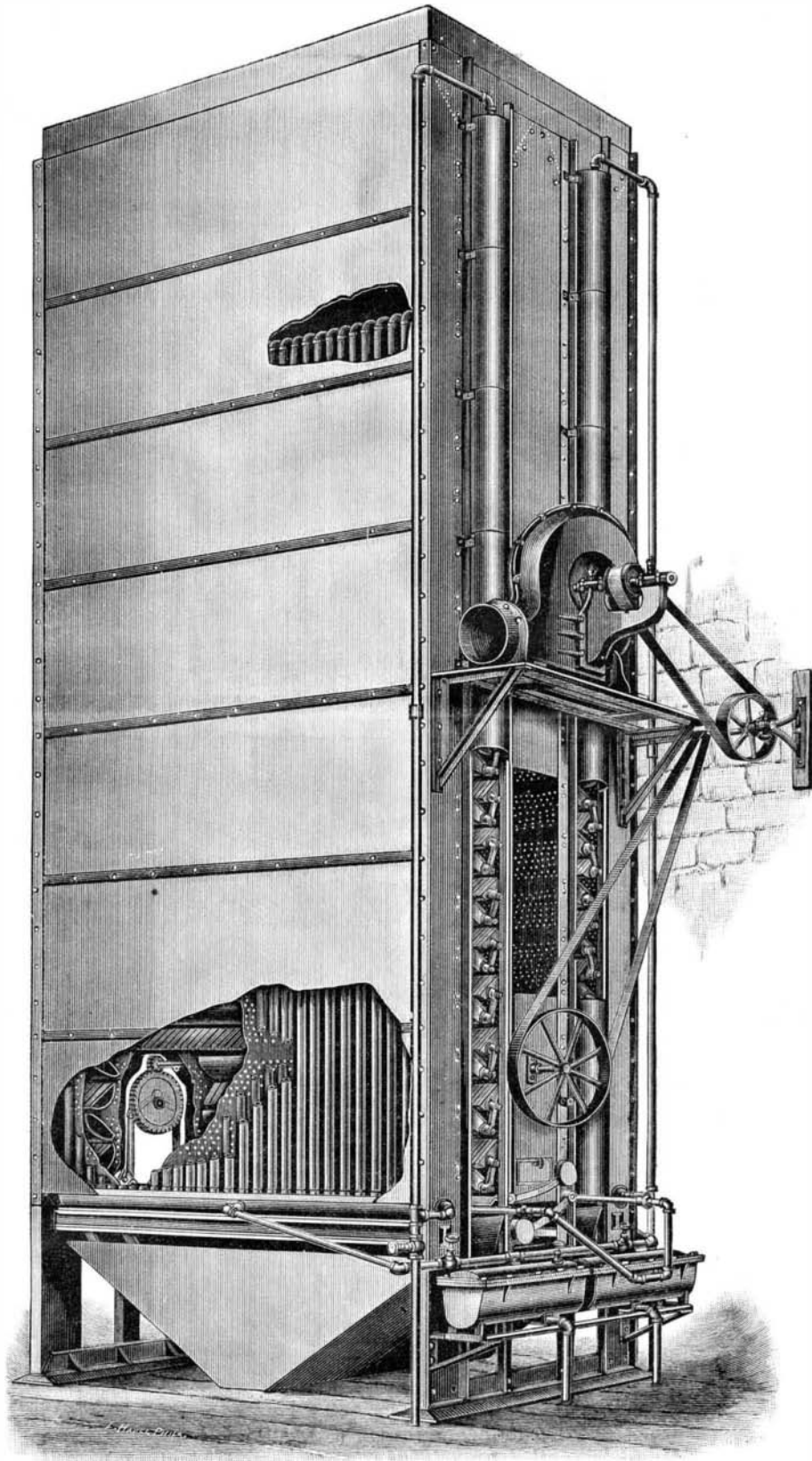
There are four, if not more, factories for the manufacture of false teeth for dentists' use in the city of Philadelphia and one in Camden. The materials used are feldspar, silice, and German clay, all finely ground, and mixed in different proportions, and kneaded with water to the consistency of moist putty. Another preparation is necessary for the production of the pink portion of the tooth, which forms the imitation of the gum. The tooth and the gum are made in one piece, and the pink tinge of the gum is given by the use of the oxide of gold in the enamel, of which platinum and titanium are the principal ingredients. The tinted enamel having also been prepared, the materials are ready for the moulders. Each mould is for a full set of sixteen teeth. It is flat, not of the shape of the jaw, for the set is broken up into twos and threes to meet the necessities of manipulation by the dentist in fitting different shaped mouths. Where the root of each tooth (were they natural) would fit in the mould are two tiny holes, in which a workman inserts the ends of two small platinum pins, with heads at each end. These heads are to prevent the pins from slipping out of the tooth at one end and at the other end out of the mouth plate, to which they are expected to hold the teeth.

The insertion of the pins completed, the mould is passed to a fellow workman, who coats the indentations which receive the "putty" with the enamel. The mould again passes into another workman's hands, who gently presses into that part of the mould corresponding to the tinted gum the preparation of the oxide of gold. By still another workman the feldspar, silice, and clay mixture is pressed to complete the tooth. The mould is then closed, placed under enormous pressure, the excess of clay squeezed out, a clamp put on, and mould and clamp placed in the drying oven. After remaining in this oven until all the moisture is removed, the moulds are opened, and the teeth, with gum attached, allowed to drop out. They show no distinguishing characteristic, separate from that of the dirty chalk appearance of the single ingredient of the clay. The tooth and the gum appear to be homogeneous. They then pass into the hands of the finishers, generally women, who with fine saws and files cut away the rough edges and make more distinct the separation of the teeth. When these skilled fingers are through with them, eighteen sets of sixteen teeth are arranged upon a slide of fire clay, re-enforced with coarsely ground silice, which will not melt in the intense heat of the oven when uncombined with other substances. From this workroom the slides are passed to the baking ovens, which have been raised to a white heat. In these ovens one slide is baked at a time, the time of remaining therein varying from fifteen to twenty-five minutes, dependent upon the temperature of the oven. When the slides are removed from the oven, they are placed in other firebrick unheated ovens, where they are allowed to cool gradually. On cooling, the brilliancy of the white enamel and the delicate pink to which the heat has changed the oxide of gold gladden the baker's heart. The cooling process complete, the slides and the teeth are handled once more before the latter are shipped away. Thin pasteboard boxes, six inches square, and narrow strips of wax are provided. The teeth are pressed on the wax, the projecting heads of the pins holding them in place. The strips are arranged in the boxes, the lids fastened on, and the teeth are ready for the market.—*Philadelphia News.*

A NATURAL bow that is on exhibition at the Brownsville (Oregon) post office is described by the *San Francisco Examiner*. It is a maple about eight feet in length, has the curves of an ordinary Indian bow, and, strange to say, is already strung with a slender limb that grows out of one end into the other so perfectly that at first sight it would be quite difficult for one to detect at which end the limb began. The bow is about three inches thick, and the string part is about one-fifth of that thickness, and is strong enough to shoot an arrow 200 yards.

**AN IMPROVED GRAIN DRIER.**

The illustration herewith shows a new form of grain drier, said to be capable of thoroughly kiln-drying from two to three thousand bushels of corn in twenty-four hours, and to be equally well adapted to drying other grain, so as to offer great advantages to maltsters and others at present using kilns. The machine consists of a series of inclined hollow shelves, supported by columns of channel iron, which form the frame of the machine, the shelves being ribbed on their surfaces and connected together at alternate ends by return bends, by which the steam introduced at the upper shelves will circulate through them consecutively until it reaches the lowest one and passes out to the steam trap. The ends of the shelves are covered by semicircular hoods, thus forming a channel, down which the grain passes, being turned over in its descent by each



**THE PHILADELPHIA GRAIN DRIER.**

shelf. At the back of the shelves, also, are steam pipes to heat the air which is drawn through by a suction fan connected to the discharge chamber on the opposite side, thus carrying off the moisture taken from the drying grain. The temperature is under complete control, and can easily be regulated by changing the quantities of steam and air allowed to pass through, so that the grain may, if desired, be discharged at a normal temperature. Adjustable oscillating valves at the bottom, operated by a crank and rocker arm, regulate the discharge, the only moving parts of the machine being this discharge mechanism and the exhaust fan. This drier is said, from tests which have been made in mills at Philadelphia and Wilmington, to be much more effective and economical than the kilns in ordinary use, its work, with an ordinarily good boiler, being equal to the drying a bushel of corn for each pound of coal used.

This drier is manufactured by Mr. Henry G. Morris, of No. 209 South Third Street, Philadelphia, Pa.

**Natural Gas at Pittsburg.**

On August 10 natural gas was introduced for the first time at the Sable Iron Works of Zug & Co., Pittsburg, under five puddling furnaces and under a battery of boilers. The process is a new one, and has been invented by the bricklayer of the work, Samuel Burton, which he has remodeled, giving entire satisfaction. Natural gas is also used at the following mills in the Smoky City, according to the *Telegraph*:

Star Iron Works, Lindsay & McCutcheon; La Belle Steel Works, Smith, Sutton & Co.; Singer, Nimick & Co.'s Steel Works; Pittsburg Iron Works, J. Painter & Sons; Clinton, Millvale, and Fort Pitt Rolling Mills, Graff, Bennett & Co.; Glendon Spike Works; Dilworth, Porter & Co., Republic Rolling Mill, American Iron Works, Wayne Iron and Steel Mill, Brown & Co., Hussey, Howe & Co., Steel Works; Park, Brother & Co., Solar Iron Works, William Clark & Co., Etna Iron and Tube Works, Spang, Chalfant & Co., at Etna; Crescent Steel Works, Miller, Metcalf, Parkin & Co., Vesuvius Iron and Nail Works, at Sharpsburg; Spang Steel and Iron Mill, ditto, and the Polished Sheet Iron Works and National Tube Works at McKeesport.

The mills still supplied with coal are: Oliver Brothers & Phillips, Pittsburg Forge and Iron Works, Eagle Rolling Mill, Sligo Iron Works, A. M. Byers & Co., Chess, Cook & Co., Elba Iron and Bolt Works, Soho Rolling Mill, Keystone Rolling Mill, Pennsylvania Tube Works, Pennsylvania Iron Works, Kensington Rolling Mill, Sable Iron Works, Juniata Iron and Steel Mill, Linden Steel Mill, and the Manchester Steel and Iron Works. Some on this list are idle, the last mentioned mill having been so nearly three years.

Zug & Co., of the Sable Rolling Mill, will introduce natural gas in all departments as soon as experiments they are now making demonstrate the best methods of using it. Wilson, Walker & Co. are building in their mill one of the Owens gas furnaces for heating purposes, and will soon be ready to use gas. The Canonsburg Iron Co. is also erecting a new natural gas furnace for the same purpose. The La Belle Steel Works, of Allegheny, which are now closed for repairs, will use natural gas instead of coal when operations are resumed. Carnegie Brothers & Co. already may be said to have perfected their plant in this direction, both as to capacity and reduced cost.

**Keep a Record.**

Some weeks since a representative of the *Artisan* called upon an engineer friend who was thoroughly wrapped up in his machine. In the course of the conversation he produced a book in which he had for months kept a record of the coal consumed each day, and the horse power developed by the engine as shown by indicator cards taken in the forenoon and afternoon. These cards being filed served as a record of the condition of the engine in those respects which are apparent from the card. This was kept for a long time without his employer's knowledge, half in fear that some objection would be raised, but was at length produced to settle one of the innumerable little points which only such a record can definitely settle, and met with so hearty an approval that the engineer was supplied with a record book, purposely ruled and lettered, and a planimeter for the more convenient and accurate working up of the cards.

All engineers who are handling powers of any extent should inaugurate a system of this kind. Keep a record not only for your coal and power, but for changes which are made, and their effect upon your fuel consumption and the working of your engine. It will not only enable you to review your experience and retain valuable information, but suggestions will frequently arise from it which will be invaluable. It begets a habit of thought, and furnishes the material for deductions which will make you a success in your business, and gives you a means of proving what you have done and do, which no amount of assertion on your part or recommendation by others can equal.

**Reliable Paste for Labels for Glass, Wood, and Metals.**

Starch, 2 dr.; white sugar, 1 oz.; gum arabic, 2 dr.; water, q. s. Dissolve the gum, add the sugar, and boil until the starch is cooked.