

HOW ARTIFICIAL TEETH ARE MADE.

BY HARRY DILLON JONES.

Among the many industries in which America now leads the world is that of making artificial teeth. The lowest quantity of artificial teeth continually kept in stock by one of the Philadelphia factories is between eight and nine millions. The shipments are made to every country in the civilized world, and even to the interior of Africa and remote parts of the Orient.

Once every dentist made his own supplies in his laboratory. Now all artificial teeth are manufactured in great central factories, and shipped to distributing centers, where they can be matched and fitted to any jaws from the ready-made stock.

The growth of the artificial teeth industry is one of the most important of scientific advances. At one time teeth were made from various ivories (elephant and hippopotamus tusk being the favorites), from the teeth of some animals, and also from human teeth.

None of these were satisfactory. The ivory of the elephant and hippopotamus tusk was not impervious to the action of the decomposing agents, and soon became objectionable. The human teeth were better protected by enamel, but the mere thought of using such teeth was enough to make one shudder. In time from this crude beginning the porcelain or, as it was sometimes called, the "incorruptible" tooth was evolved, and this is in use to-day.

With the invention of porcelain makers were able to do that which they never could with the old ivory teeth, namely, to color them to match the real teeth, and thus diminish the chance of their detection in the mouth. In the great factories where teeth are now turned out by the million, labor of the most skilled kind is employed to make the teeth, match them, and assemble them properly for the use of the customer. Women perform an important part of this work, for their keen sense of touch enables them to quickly detect flaws in the finished article, and their superior education in the matter of matching colors makes it possible for them to detect a variation of the slightest shade in the teeth, so that teeth that to a man may seem perfectly matched will to a woman's eyes show slight differences that are sufficient to impair their value.

But before the finished teeth are submitted to the keen eyes of the girl examiners for the final test, they have to pass through a succession of processes. Porce-

lain teeth are composed of two parts, one being the body and the other the enamel. The first step in the making of the tooth is the mixing of the ingredients for the porcelain. This is done by experienced chemists, for the material must be flawless. The body comprises various components, for each manufacturer has his own formula, and these of course are factory secrets. Broadly, however, it may be said that the "body" of the artificial tooth is made from feldspar (usually called spar), silex, and kaolin. The enamel is made from feldspar with a little silex and coloring

it is necessary first to make a mold. The greatest care is taken by hand workers in the preparation of these molds, which must be shaped and tooled with the utmost precision, in order that the teeth may conform to the style desired. In one of the big factories the writer was shown an immense fireproof room in which were kept the molds of hundreds of different varieties of teeth.

When the composition for the body of the tooth has been placed in the mold, the cover is shut down, and it is put aside in readiness for the firing. Work-

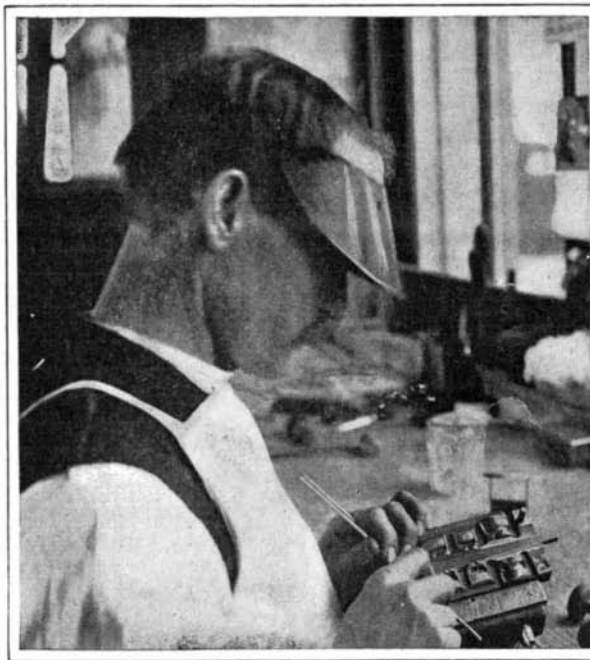
men are busy all day long, in rows, filling the molds with composition and placing them aside for the men who go around collecting them for the ovens. The operators at the ovens bake the composition to the proper hardness, and then send them to the trimming department. Here workmen take the hundreds of molds that pass through the ovens daily, turn out the hardened teeth, trim off the rough edges,

and shape them for the second baking. When taken from the furnace, where they receive a final and prolonged baking at a tremendous heat, the teeth are ready for examination and the last touches by the women workers. After examining for defects and discarding the teeth that show to their practised touch and quick eye the presence of some slight flaw, the girls polish and finish the teeth ready for shipment.

There are faddists in teeth as in everything else. Sometimes a woman will order a set of teeth of the kind she has seen and admired in some one else. In most cases it is not difficult to match these teeth from



Final Inspection for Defects.

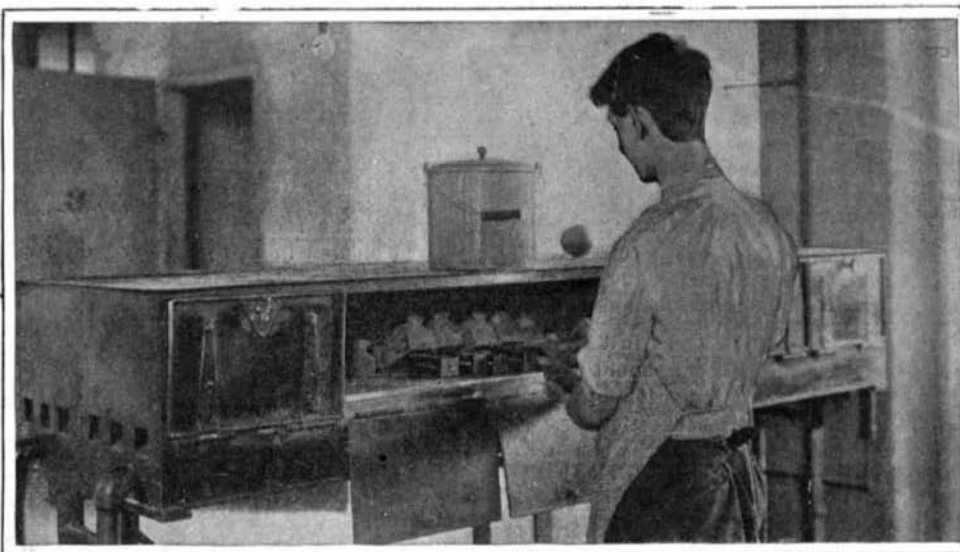


Making the Molds.

matter. For the information of the exacting reader, it may be said that the feldspar is composed of silica, alumina, potash, lime, and oxide of iron. It is found in various parts of the United States, near Boston, Philadelphia, Wilmington, Del., and elsewhere. Kaolin is merely the Chinese name for porcelain clay. It is formed by the decomposition of the feldspar of granite hills, which washes down into the valleys below. It can be obtained in various parts of the country.

The coloring materials used in the making of the teeth are gold and its oxides; purple of Cassius, oxide of manganese, oxide of cobalt, platinum sponge or filings, oxide of titanium, oxide of silver, and oxide of uranium.

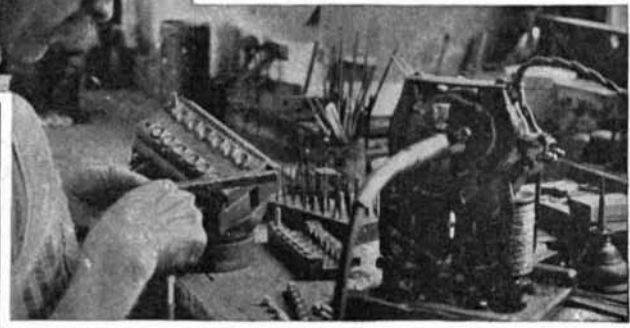
The material for the body



The Molds Are Hardened by Baking.

the twenty-five shades of color that the big factories carry in stock. But occasionally there are orders for what are known as "freak teeth," teeth which have a peculiar color or a shape so different from any teeth before manufactured that it takes days of experimenting with chemicals and molds to produce the desired match. On the other hand, men frequently want teeth to match their own tobacco-stained teeth. Then the coloring process has to be of the expert order, to prevent anyone detecting the presence of a false tooth.

According to information gathered by the American Iron and Steel Association, seventeen blast furnaces were in course of erection in the United States at the close of 1905, and three furnaces were being rebuilt. Of the furnaces building two were in New York, four were in Pennsylvania, one was in Tennessee, two were in Alabama, three were in Ohio, two were in Illinois, one was in Michigan, one was in Wisconsin, and one was in Colorado. With the exception of the Michigan furnace all of these furnaces, when completed, will use coke or mixed anthracite coal and coke for fuel. The Michigan furnace will use charcoal.



Shaping the Molds.

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of the teeth is first heated to a white heat and thrown into cold water. It is then broken into small pieces, freed from impurities and ground in a mortar till it will pass through a sieve of No. 9 bolting cloth. When the material has been finally treated and fused and mixed with silex and kaolin, it is of a semi-translucent appearance. With this material the skilled workers in the factory mold the teeth to the desired shape. When new teeth are ordered—and there are fashions in teeth as well as in every other line of commerce—



Examining Finished Teeth for Flaws.