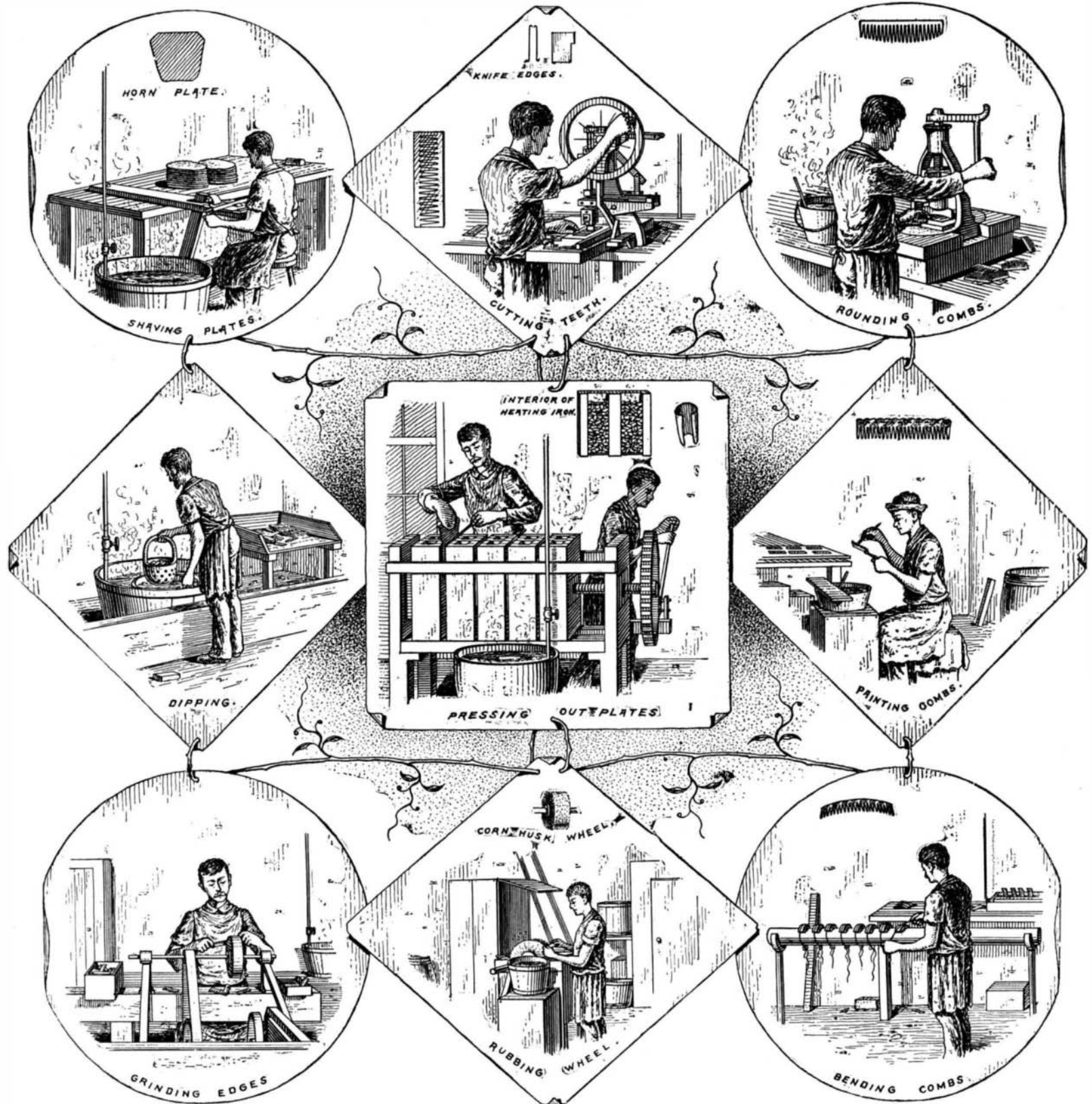


THE MANUFACTURE OF HORN COMBS.

A large portion of the combs used for the hair are manufactured from cattle horns, which are bought by the manufacturer at from three to twenty cents each, according to size; they range from one to three feet in length. The horns are first sawed up into what are called rings, from six to eight inch lengths, each ring being from two to four inches in diameter. From two to three cuts are made from each horn. The rings are then sawed through lengthwise and passed through a tumbling process which takes off the dirt and grit. The rings of horn, to the number of 300, are put into a barrel or cask, which is perforated with about 100 one inch holes and made to revolve in a tank of water for about two hours. After the tumbling process is completed, they are taken out and boiled in hot water for from one to one and a half hours to make them pliable. From the hot water they are then placed in

formed by means of a draw-knife, which is passed across the surface of the plate, taking off the roughness and evening them up, the plates running in thickness from about one-eighth to one-half an inch. A good hand can scrape about 400 plates daily. After shaving they are again boiled for five hours to bring them to the right working point. They are then cut into the proper size and the edges trimmed. Scolloped edges are cut by means of dies. The next operation is the cutting of the teeth. This is performed by means of two steel cutters placed closely against each other, back to back, which, when the machine is in motion, move up and down one after the other, passing through the material, cutting the teeth of the comb. The cutting edges of the knives are shaped similar to an elongated S, the curved edges of one end turning in and the other out. The strip of horn is held down firmly in place by a binder, which moves forward with

them against the wheel, which smooths them and rubs off the grit from the grindstone. This wheel is about eighteen inches in diameter and about eight inches in thickness and travels at the rate of about 2,800 revolutions per minute. About twenty gross of double combs are buffed daily. The ashes are washed off thoroughly and then they are prepared for staining. This is performed by dipping the combs in a heated solution composed of one-fourth nitric acid to three-fourths water, which gives them an amber color and makes them take the stain. They are left about five minutes and then taken out and washed in clear water, after which they are stained to imitate tortoise shell with a mixture composed of potash, lime and red lead. The color is put on thickly in stripes and the combs left to stand for from five to eight minutes. The combs are then washed, leaving a stain on them similar to tortoise shell. The combs are then dried and polished on a



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a kettle of hot whale oil for about half an hour, and then put through a pressing machine, which straightens and takes out the curl. The rings are placed separately between a number of heated iron plates, which are pressed tightly together by means of a gearing wheel, the threaded shaft of which connects with the center of one of the end plates. The wheel is turned by means of an iron bar or lever, the end of which passes between the cogs; the operator, by drawing down the bar, forces the wheel and shaft around, which in turn presses the plates together.

Four pieces of horn are pressed out at a time, the operation taking about five minutes. About 500 horn plates are pressed out daily. In the center of each iron pressing plate are two fire boxes about one and a half inches in width and about four and a half inches in length, running through from top to bottom, in which a charcoal fire is made for heating the plates. After pressing, the horn plates are reboiled for five hours in hot water and then shaved. The operation is per-

every stroke of the knives until the whole comb strip has been cut through, each knife making a stroke of about half an inch. When one knife makes a cut the other takes it up, making one continuous cut through the entire strip. The guard teeth at each end are made by turning the knives slightly with a lever. The parts are then separated from each other, the cutting of which having formed two combs. About twelve gross of double combs can be cut daily. If the combs are to be curved, they are circled off by means of a circular steel cutter.

The next operation is drying, which is performed by placing a number of the combs on a drying or heating box for from five to eight minutes. After drying they are dressed up and have their teeth sharpened. This is performed on a grindstone traveling at the rate of about 3,000 revolutions per minute, after which they are put together again tooth to tooth and then buffed on a corn husk wheel. A mixture of fine coal ashes and water is put on the combs, the operator holding

buffer sixteen inches in diameter composed of about 200 circular sheets of cotton flannel. This buffer travels at the rate of about 3,000 revolutions per minute, rotten stone and oil being used for polishing. The ends of the combs are then softened in warm sand and the guard teeth are drawn in, a piece of an old comb being used to keep them in place until they become cold. Bent or curved combs are made by tying a number of them down tightly to a circular wooden roller for five or six hours.

Combs are colored black by dipping them for half an hour in a hot solution composed of one-half pint of sugar of lead to four gallons of water. By dipping combs for half a minute in a solution composed of two tablespoons of muriatic acid to one pint of water it will produce a very good imitation of mother-of-pearl. The sketches were taken from the plant of James Wilkinson, New York City.

THE word Eskimo means "raw fish eaters."