

HARD VULCANIZED INDIA-RUBBER; CALLED, ALSO,
EBONITE AND VULCANITE.

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CLASS VI. — SUBDIVISION 3.

No one who is intimate with American manufactures and inventions, could inspect the Vienna Exhibition without being convinced, that however inadequately our industries might be represented in the space allotted to the United States Commission, and however unwilling our manufacturers might be to exhibit their goods in a country where they did not seek a market for them, the inventive genius of Americans had contributed very largely to the goods and machinery exhibited by other nations.

One instance of this fact is to be found in the manufacture of the Hard Vulcanized India-rubber.

It appeared in the American Court only in one form; as a part of the penholders at the gold pen stands; and yet, invented by the American Goodyear, the subject of many American patents and patent lawsuits, and manufactured by the New York Rubber Comb Company, the Vulcanite Jewelry Company, the Novelty Rubber Company, and Austin G. Day, it might have claimed a prominent place among American industries at the Universal Exhibition.

On the other hand, the names accompanying the exhibits of the Russian American Company of St. Petersburg, in the Rotunda, and of the American Rubber Company of Mannheim, and the New York Hamburg Company of Hamburg, in the German Annexe, gave evidence of their American origin.

The Scottish Vulcanite Company of Edinburgh owes its establishment, in part at least, to American capital and enterprise, while the pamphlet distributed by the chief European

manufacturer of vulcanite, H. C. Meyer, Jr., of Hamburg, whose lofty column of this material formed the most prominent of all the hard rubber exhibits, expressly states that *his* manufacture of this article originated in the purchase of Good-year's American patent in 1851, and the establishment of a factory at New York, the forerunner of that now carried on by the New York India-rubber Comb Company, at College Point.

The process of manufacturing this hard compound in India-rubber is too well known to need a long description here. The raw material is first cleansed from the impurities with which it is mixed in the process of collection, is then incorporated with sulphur, or other vulcanizing material, and subjected, under careful exclusion from the atmosphere, to a heat of from 270° to 310° Fahrenheit, being, while in a soft condition, rolled into sheets or pressed into moulds, whose form it retains after being vulcanized. By the addition of various pigments it can be colored, and samples of red, brown, yellow and mottled vulcanite were exhibited by H. C. Meyer, Jr., of Hamburg.

So far as the various processes of manufacture are concerned, the means of hardening the material, of giving it a permanent polish, and protecting it against atmospheric and solar influence, of coloring and working it, etc., nothing new could be learned at Vienna. These processes are treated as secrets in Germany, and not, as here, published in the patent specifications.

The show-cases of H. C. Meyer, Jr., of Hamburg, gave a comprehensive view of all the purposes to which the hard rubber has hitherto been successfully applied.

The column itself, a homogenous cylinder of intensely black, highly polished vulcanite, was in itself an illustration of the extent to which the great technical difficulties connected with the manufacture of large masses of the material, hitherto employed almost exclusively for small articles, have been surmounted.

Other exhibits were patterns of vulcanite sheets of various colors used as veneers, and for the manufacture of combs, buttons, paper-knives, checks, eye-glass frames, counters, black piano-keys, knife-handles, whalebone substitute, etc. But it was in the manufacture of moulded articles of irregular

form that the greatest progress had been made. While the deep blackness, ease of working and capability of receiving a high polish, long ago suggested the use of vulcanite as a substitute for the fashionable but more expensive and brittle English jet, its plastic qualities have not been employed here to so large extent as in Europe. The Hamburg house first availed itself of these qualities in 1864, and initiated thereby a revolution in the rubber jewelry manufacture, making, at a low price, copies of the boldest and finest carvings, and applying it to all purposes of plastic ornament, from the smallest articles of jewelry to statues, such as those exhibited in the gardens of the Vienna Exhibition, and having in their light brown color, their sharpness of outline, and capability of resisting the weather, some resemblance to the more expensive bronze.

The properties of rubber as a non-conductor of electricity have been largely utilized in the manufacture of electro-magnetic instruments for telegraphic purposes; but owing to some technical difficulties it has not been so largely employed for insulating open-air telegraph wire as might have been expected. In Europe it has been used for this purpose as a substitute for glass and porcelain on the telegraph lines of Russia, Denmark and North Germany, with so much success as to show that, if more expensive in first cost than the materials hitherto used, it was, in the long run, more economical and effectual. The Prussian government have used large quantities of the vulcanite insulators for their military telegraphs in their operations against Austria and France, and a certificate by the Prussian director of telegraphs, Major-General von Chauvin, bears evidence to the excellence of Meyer's vulcanite for this purpose.

By far the largest quantity of vulcanite manufactured, is used for the production of combs, of which one factory alone, the Harburg India-rubber Comb Company, have made and sold 10,800,000 combs of this material in one year. In the manufacture of this article, there are no new processes to be noted, but only the excessively low price of many of the goods produced. Rubber surgical instruments, syringes, etc., have hitherto been a specialty of New York, and those exhibited in the German Annexe, in the show-case of the Hamburg New

York Company, were on show-cards which bore the imprint of an American company. While the field of application for hard vulcanized India-rubber is being extended every year, the supply of the raw material is comparatively limited, and the English government have lately caused investigations to be made with a view to extend its culture.

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