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# No. 13,959/14.

APPLICATION DATED

24th July, 1914.

*Actual Inventor* ... ... ... TOKICHI NISHIKAWA (deceased), Tokio.
*Applicant and Legal Representative of Actual Inventor* ... ... ... SHINKICHI NISHIKAWA.
*Application and Complete Specification* ... Received, 24th July, 1914.
*Acceptance* ... ... ... ... Advertised, 7th December, 1915.

**Class 38.5.**

*No drawing.*

## COMPLETE SPECIFICATION.

## "Artificial method of enforcing the formation of free pearls of regular form by pearl producing molluscs."

I, SHINKICHI NISHIKAWA, of No. 10, Higashi-Toriizakacho, Azabu-ku, in Tokio, in the Empire of Japan, without occupation, hereby declare this invention and the manner in which it is to be performed, to be fully described and ascertained in and by the following statement:—

The object of this invention is to get a free pearl of regular form by producing the natural process of the pearl-production by an artificial means.

Detailed description of the method:—The most important phase of the natural process of the pearl-production is the formation of the pearl-sac by the nacre-secreting cells, i.e. the epithelial cells of the mantle, within the tissue of the pearl producing mollusca. The cause and process of the formation of the pearl-sac is still an open question. However that the formation of the pearl-sac is the essential and necessary phase of pearl production is a recognised fact. When a pearl-sac is produced a free pearl is produced as its natural consequence.

A small piece of the epithelium of the mantle or the whole or a part of a pearl-sac which already exists in the tissue of a pearl producing mollusc is severed from the rest of the tissue with a knife and inserted into the tissue of the same or other individual of the same or other species through the opening made with a knife. After a lapse of time the opening is healed, and the cells of the inserted tissue undergo division, and a pearl-sac is formed. A free pearl is formed within the pearl-sac as the result of its nacre-secreting activity.

The free-pearl produced by the above-mentioned process is generally irregular in form as most natural pearls. However when a nucleus, a body with regular form, suitable dimension and of a substance insoluble in water, which undergoes no chemical change within water or the molluscan tissue, for example a spherical body of mother of pearl with a diameter varying from one to ten millimeters according to individual cases, is inserted at the same time and to the same place with the small piece of the mantle-epithelium or the whole or a part of the pearl-sac existing in the tissue of a mollusc into the tissue of the same individual or other individual of the same or different species, the pearl-sac which is formed as the consequence of the treatment surrounds the nucleus and the nacre secreted is deposited over the surface of the same body and the free pearl produced possesses the same regular form after that of the nucleus.

Having now fully described and ascertained my said invention and the manner



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in which it is to be performed, I declare that what I claim is:—

1. To cut a small piece of the epithelium of the mantle of the whole or a part of the pearl-sac existing within the tissue of a pearl producing mollusca and to insert it into the tissue of the same or other individual of the same or other molluscan species with a nucleus with the description as stated in the "Detailed description of the method" to produce a free pearl with regular form.

Dated this 22nd day of July, A.D. 1914.

SHINKICHI NISHIKAWA,
By his Patent Attorney,
FRED WALSH.

*Witness*—George F. Hanson.

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