

**23.—A NEW FISH-HATCHING APPARATUS.\*****By von LA VALETTE ST. GEORGE.**

The progress which has been made in the culture and care of fish in our waters has caused the invention and application of many different kinds of apparatus for the further development of artificially impregnated eggs.† Much as they differ from each other in form, the most important variation in their construction is this, that, in some, the water which moistens the eggs (which are spread on a sieve-like frame) is introduced from the top, and, in others, from the bottom.

During an experience of more than twenty years I have tried all the different apparatus which I could obtain, both old and new, and with all of them—Jacobi's hatching-box, Coste's hatching-apparatus, Kuffer's hatching-pot (which cannot be too highly recommended), and troughs made of wood, sandstone, cement and granite—I have attained my object, if the principal condition for successful hatching, a sufficient quantity of clear water of the right temperature, was fulfilled; although the California principle of introducing the water from below, on which Von dem Borne's and Eckardt's ingenious apparatus are based, may deserve the preference.

Aiming at the removal of some noticeable defects, caused by too complicated a construction or unsuitable material, I constructed, two years ago, after numerous experiments, a new hatching-apparatus, which I have practically tested during the last two winters. The object which I had in view was to obtain an apparatus as comprehensive, simple, and handy as possible as to its form, and made of a material which would not be affected by the hatching-water, and would not favor the injurious development of fungi. The form is, in its main features, that of the "hatching-bucket," described in the circulars of the German Fishery Association for 1879, p. 107, and the material used is faience.

I shall give a brief description of this apparatus, which, in its construction, offers no technical difficulties whatever, and which I hope will not only prove useful to the practical pisciculturist but also prove a valuable aid in the prosecution of embryological studies.

\* "*Ein neuer Fischbrutapparat*," von v. la Valette St. George. Bonn, 1882. Translated from the German by HERMAN JACOBSON.

† Commencing with its number for October 15, 1881, the "*Bayerische Fischerei Zeitung*" contains a long and highly valuable historical and critical article on "Hatching-apparatus for Salmonidae," &c., from the pen of one of our foremost pisciculturists, Mr. F. Zenk, president of the Lower Franconia Fishery Association, in Würzburg.

It consists of two vessels, one fitting in the other. The outer one is of cylindrical shape, 26 centimeters deep, and measuring 30 centimeters across. The upper edge protrudes 1 centimeter.

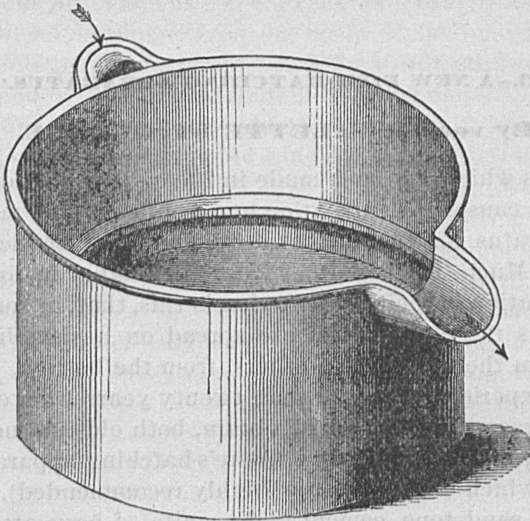


FIG. 1.

On the outside a tube is fastened, which widens into a funnel at the top and serves for admitting the water; its diameter is 6 centimeters, and just above the bottom of the vessel it communicates with the interior by means of an opening 5 centimeters wide. Opposite the inflow-opening the edge of the vessel is cut out 5 centimeters and has an outlet

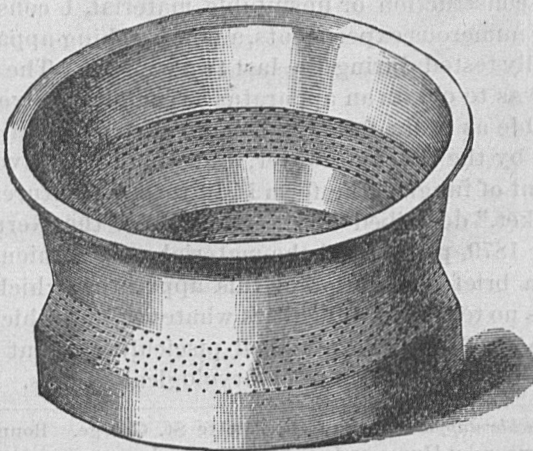


FIG. 2.

8 centimeters broad and 9 centimeters long, which is slightly inclined. Immediately above the opening of the tube described above, and 5 centimeters above the bottom of the vessel, a projecting edge, 1 cen-

timeter thick and 1.5 centimeters broad, runs all round the inner side of the vessel. On this flat edge rests the second vessel, which is 20 centimeters deep, and whose bottom is perforated by numerous very small openings. Up to a height of 5 centimeters the side of the inner vessel rises perpendicularly; for the next 5 centimeters it is inclined 2 centimeters towards the inside, and above this it again rises perpendicularly. The upper edge, 2 centimeters broad, is bent over. The second division of the inner vessel, showing in its section an angle projecting towards the inside, is perforated along its entire circumference, just like the bottom.

The application of this apparatus will easily be understood. Through the tube on the outside the water flows in, entering the bottom of the outer vessel; through the perforated bottom of the inner vessel it enters into this and moistens the eggs, which may cover the bottom to the height of 5 centimeters; the water now goes through the perforated part of the circumference of the inner vessel, and passes again into the outer vessel; but it must rise 5 centimeters higher, in order to flow out through the outlet of the outer vessel. In one minute 3 liters of water can pass through the apparatus.

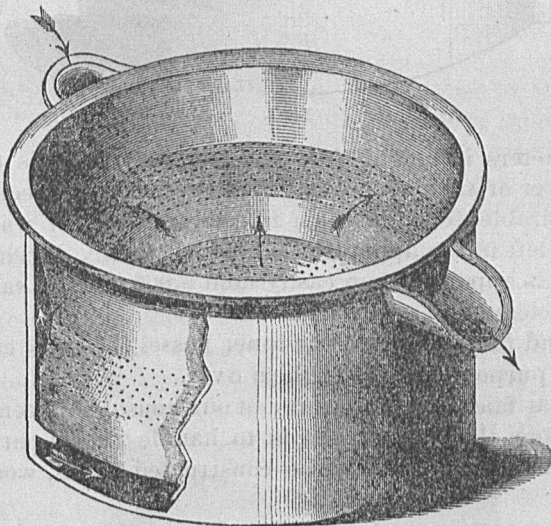


FIG. 3.

The advantages of this construction will be readily perceived. In the first place the upper frame, which prevents the inspection of the eggs, which easily becomes too tight, and which injures the young fish when they press against it, is dispensed with. The perforated wall of the inner vessel lets as much water flow off into the outer vessel as flows in through the perforated bottom. But as the outlet of the outer vessel is still 5 centimeters higher than the perforated ring of the inner vessel, and consequently there must still be a depth of water of 5 centimeters

above this, there is no current towards the perforated ring of the circumference; and the young fish are not exposed to any injury, especially of the umbilical bag, by being driven against the sides of the vessel, which danger is in other apparatus averted by large and inconvenient sieve-like frames.

What are known as "catch-boxes" (*Fangkasten*) are entirely unnecessary, as the fish which may happen to slip out have still above them a

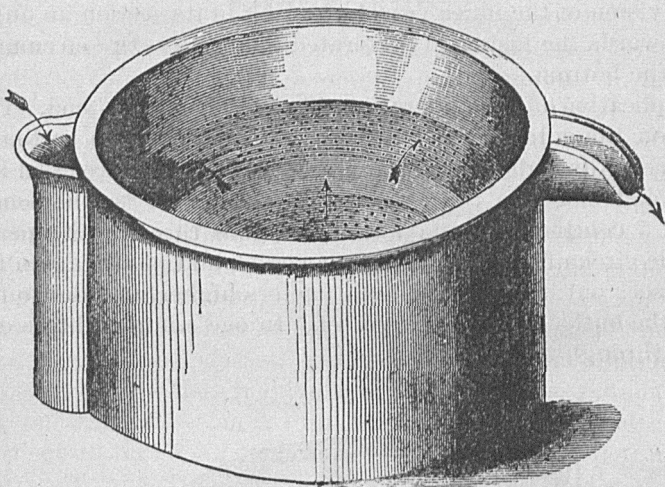


FIG 4.

space 5 centimeters in height, free of water, and there is therefore no chance whatever of their escaping. Unless, for some special reason, it is deemed desirable to place them in a larger body of water, the fish may safely be left in the apparatus till they are fully developed.

Although this apparatus can easily hold 5,000 eggs, it takes up very little room, is clean, and easily handled.

By lifting and pressing down the inner vessel the eggs can easily be moved for the purpose of picking them over.

It is true that faience, like so many of our household utensils, is fragile. If, therefore, the person who is to handle the apparatus suffers from chronic clumsiness, it may be constructed of tin, wood, stone, or cement.

This hatching-pot cannot be considered expensive, certainly not more expensive than other apparatus of this kind, as it may be obtained at the reasonable price of 10 marks (\$2.38) from the porcelain and faience factory of Ludwig Wessel, in Bonn.