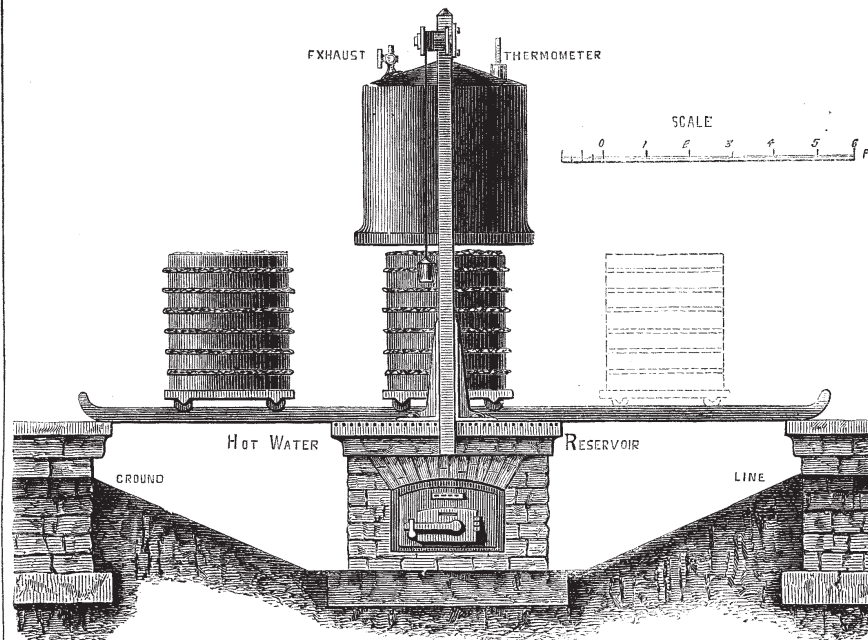


PNEUMATIC OVEN FOR DRYING SILK COCOONS.



ALL the systems of preparing and perfecting the cocoon for the better production of silk, both in quantity and quality, are reducible to two forms or operations—that by heated air, and the other by steam vapour, but both one and the other at different phases of the translation of the cocoon present grave inconveniences—owing to the gummy or viscous substance of the cocoon forming a vesicle over the surface, and becoming hard, thus rendering the operation more hazardous and difficult during their development in the heated pan.

In stoves heated altogether by vapour, the preservation of the cocoon is impossible, although they mature and become completely developed in the fire-pan; thus the cocoons heated by an atmosphere of hot air, are preferable to those by vapour for the preservation of the cocoons in *gallettiera*, while those by vapour, are much preferred by operators for the better and more complete rendering of the silk.

The new oven invented for this purpose, and shown in the engraving, presents at once the elements of success, and combines the advantages of both these systems, without their inconveniences and risk, i.e., the preservation of the silk cocoon while in a state of perfect development in the heated pan.

The new pneumatic oven consists principally of three parts; first, a basin or reservoir of water, which must be kept in a state of gentle ebullition by a small oven beneath; secondly, a large metal bell or cover, which can be raised or lowered at pleasure by an even balance-weight; thirdly, two plates which run on small rails, by which arrangement the pile can be filled with cocoons as they proceed from the stove. A small cock at the top of the bell serves as an exhaust to the heated air or steam within, the temperature being guided by the thermometer, whose bulb must be in the interior of the bell. The water in the basin should always be maintained at a medium height, which ordinarily is about 3 in., and must also be kept rigorously boiling, as any abatement of the temperature within the heated bell would be fatal to its whole contents. When the bell is lowered over the trays prior to the drying operation, the small tap at the top must be kept open until the thermometer marks 100°, when the small tap can be closed and the bell raised.

The heated air which circulates in the bell comes in contact with the cocoon, thus expelling the air from their interior, and consequently the chrysalis of the silkworms become asphyxiated from the heated air, whilst the cocoons remain perfectly dry, and their rich and beautiful colours are preserved.

When the cocoons have been in the hot air about fifteen or twenty minutes, the bell can be raised and the plates withdrawn, and the basket of cocoons taken out, when a wholesome and agreeable perfume is emitted, which is a proof that the cocoons have undergone the operation without the slightest putrefaction, and the brilliant colours they possessed before being placed in the stove are unaltered; they are neither wet nor damp, but softened. When a cocoon is cut in half it is perfectly dry inside, while the viscous humours of the chrysalis remain coagulated within itself. While the cocoons are cooling, they obtain a hard bright consistency, a good indication of the perfection of the apparatus, and the beautiful and healthy cocoons do not become spotted or stained from being in contact with others less perfect. The production of the silk is greatly superior, both in quantity, quality, and colour to those treated by other systems, and requires only to be known and understood to become universally used in preference, on account of its exceedingly great advantages in simplicity and economy, one man being sufficient to attend

to the furnace to keep the water in a state of proper gentle ebullition and to watch the thermometer of the bell.

The above particulars have been sent to us by Mr. George Latham, C.E., at Trieste, and is the invention of Professor Castrogiovanni.