Specification of Auguste Boissonneau : artificial eyes.

A.D. 1854 . . . . . N° 1715.

SPECIFICATION

OF

AUGUSTE BOISSONNEAU.

ARTIFICIAL EYES.

LONDON:
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A.D. 1854 . . . . . N° 1715.

Artificial Eyes.

LETTERS PATENT to Auguste Boissonneau, of Paris, in the Empire of France, Ocularist, for the Invention of "IMPROVEMENTS IN ARTIFICIAL EYES."

Sealed the 23rd January 1855, and dated the 5th August 1854.

PROVISIONAL SPECIFICATION left by the said Auguste Boissonneau at the Office of the Commissioners of Patents, with his Petition, on the 5th August 1854.

I, AUGUSTE BOISSONNEAU, of Paris, in the Empire of France, Ocularist, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN ARTIFICIAL EYES" to be as follows:—

My improvements apply to artificial eyes made of enamel and crystal. The form of the eye is that of a concavo-convex capsule, the smaller portion of which corresponds to the caruncula. The present Invention may be divided into two parts. The first part refers to the use of artificial eyes upon slightly shrunken ocular globes, and consists in proportioning the length of the artificial eyes in such manner, that, taking into account the very variable proportions of the pathological parts to which they are to be applied, their caruncular and temporal portions shall not exert pressure upon the corresponding organic parts, and in making the necessary shortening only in the temporal section. In an artificial eye thus formed, the cornea and iris, being brought nearer the temporal section, throw a weight upon that point, which allows the eye to balance upon its lower palpebral section, resting upon the corresponding

region of the conjunctival fold. Now, as it no longer exerts its previous pressure on the palpebral angles, and its temporal section not being in connection with the conjunctival reflexion of the outer canthus, it ceases to be fixed in its horizontal position by mechanical power.

The second part of the improvements consists in forming a notch, perforation, or aperture in the inferior palpebral section of all descriptions of artificial eyes, whereby a communication is established between the inside and outside of the artificial eye, which, allowing of the lachrymal fluid maintaining its proper level, prevents its remaining in the hollow of the eye, and thus restores the function of the lachrymal canal. This part of my Invention, in order to be effective, should be carried out in such manner and in such forms and proportions as regards the varieties of shape and size of the remains of the eye, that the conjunctiva, which is naturally very elastic, should not, by acting as a valve upon the notch, prevent the escape of the fluid.

This second part of my Invention may be applied to all descriptions of artificial eyes, of whatever material composed, and whether made on old or new patterns. The notch, perforation, or aperture may be on any point of the inferior palpebral section of the artificial eye.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Auguste Boissonneau in the Great Seal Patent Office on the 5th February 1855.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, AUGUSTE BOISSONNEAU, of Paris, in the Empire of France, Ocularist, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Fifth day of August, in the year of our Lord One thousand eight hundred and fifty-four, in the eighteenth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Auguste Boissonneau, Her special licence that I, the said Auguste Boissonneau, my executors, administrators, and assigns, or such others as I, the said Auguste Boissonneau, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN ARTIFICIAL EYES," upon the condition (amongst others) that I, the said Auguste Boissonneau, by an instrument in writing under

my hand and seal, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Auguste Boissonneau, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, reference being had to the Drawings hereunto annexed (that is to say):—

My Invention may be divided into two parts. The first part of the Invention consists of a peculiar arrangement of the different parts of artificial eyes, which causes them to assume of themselves in given cases a horizontal position, as regards the extremities of their long diameter corresponding to the palpebral angles. This contrivance adapts the artificial eye at once for that side of the face to which it is to be applied, and at the same time ensures its remaining constantly equipoised, without in the least interfering with the lachrymal functions, and also its obeying the impulse of the moving power (the remains of the sightless globe) before which it is placed.

The second part of the Invention consists in forming a notch, perforation, or aperture in the inferior palpebral section of all descriptions of artificial eyes, whether of new or old manufacture. By this means a communication is established between the internal and external parts of the artificial eye, which prevents the stagnation and decomposition of the tears in the concavity of the eye, and causes the lachrymal fluid to be constantly on a level with the punctum, (the orifice which in the normal state receives the tears and conveys them into the nose,) thus restoring the functions of the lachrymal canal.

The vitrified substances employed in the manufacture of artificial eyes are generally of the same specific gravity, whatever may be their kinds and colors. The thickness of the enamel which imitates the sclerotica is the same in all points of the artificial eye. In eyes made according to my former improvements, the cornea being situated closely to the caruncular extremity of the artificial eye, caused that extremity to be heavier and to sink down towards the lower lid by a rotatory movement of the eye. This imperfection could only be remedied by the pressure which the two extremities of the artificial eye exercise on the orbital parts, to which they correspond, and which fit in the curves, which may be seen in Figures 2, 3, and 4 of the annexed Drawings.

Boissonneau's Improvements in Artificial Eyes.

Now, my first improvement has reference to the adaptation of artificial eyes upon shrunken globes more or less atrophied. It consists, first, in causing the notch of the temporal extremity of the artificial eye to be dispensed with, as shewn at D, in Figures 6, 7, and 8, the notch being no longer necessary. The section of this portion of the artificial eye presents an almost vertical line, which is rounded off at its extremities. Second, it consists in regulating the long diameter of the artificial eye, so that the caruncular and temporal portions may not exercise any pressure on the corresponding organic parts, the pathological conditions of the orbit in which it is to be placed being duly considered. And third, it consists in effecting the necessary shortening by removing the temporal portion only. It will be seen below how it is that this portion can be thus modified or shortened without making the iris lose the central position it should occupy between the lids.

The artificial eye being thus settled, its corneal portion is placed in the vicinity of the temporal section, and carries there a counterpoise, which allows it to be duly balanced on its inferior palpebral section or margin, and to rest on the corresponding part of the conjunctival fold. Now, as the artificial eye no longer exercises its former pressure upon the palpebral angles, and as its temporal section or margin does not any longer act in any way on the external conjunctival fold, it is plain that the artificial eye is no longer kept in a horizontal direction by a mere mechanical force. On the contrary, the artificial eye is left quite free, and although it is in contact with the parts pressed upon in the old system of adaptation, the change of place of the thicker portion keeps it horizontally on its inferior palpebral section in perfect equilibrium, by counteracting the difference of weight caused by its rotation.

In comparing Figures 6, 7, and 8 with Figures 2, 3, and 4, it will be seen that the latter are mere modifications of the former, always excepting the notch on the inferior margin, which belongs to the second part of my improvements. According to the rules which I have just laid down, the superior palpebral section or margin is less developed; but the proportions of this part of the artificial eye may vary as to lightness of weight without the least inconvenience, as far as the present improvements are concerned.

It will be easily understood that no standard as to size can be fixed, owing to the varying state of the orbit of the sightless eyes; and because the new as well as the old artificial eyes may undergo in their general disposition numberless variations, any artificial eye which shall be shaped according to the method which I have just indicated, and which will assume a horizontal position spontaneously, without any mechanical contrivance, and by the sole law of equilibrium, whether it be made or not of other than vitrified substances,

comes directly under my improvements, as regards principle, application, and effects.

It was necessary to keep the artificial eye in a horizontal direction by some power independent of mechanical action, without increasing the weight of the enamel, without interfering with the harmony of the features, especially as to the spot in which the iris should be placed between the lids. I was very anxious to avoid pressure, in a hygienic point of view, and being naturally led to shorten the temporal margin, the centre of gravity was displaced and success complete.

I will now state by what circumstance I was led to notice these facts. When an artificial eye is contrived to maintain a horizontal position by mechanical means, it causes on the first day it is worn a dilatation of the external portion of the mucous membrane which supports it, on account of the pressure of its extremities. This first artificial eye which makes a deep indentation in the mucous membrane should be exchanged on the next day for another eye, the temporal margin of which should be decidedly longer.

The caruncular or nasal margin need not be modified in this manner, because it rests against more resisting parts than the opposite side does. It is plain that the latter presses directly on soft parts of a very dilatable nature, which, yielding to pressure, render for some days a change of eyes necessary, until the dilatation no longer takes place, and the parts successfully resist the pressure. Hence arises a peculiar increase of the temporal margin or section, which increase was preceded by a shortening of the same in the trials made to remedy pressure. But this shortening, whilst it did not always reduce this margin to the same extent as the opposite one, of course removed the centre of gravity with favorable results as to the equipoising of the artificial eye.

Although my mode of equipoising artificial eyes can only be successfully applied in the more recent shapes, my second improvement, which is now to be described, is applicable to all kinds of artificial eyes; and this improvement providentially removes a most distressing source of inconvenience, as it entirely frees the patient from the accumulation of mucos, which was the consequence of the tears decomposing and stagnating in the concavity of the artificial eye.

The means by which I have succeeded in correcting this imperfection are the following:—

I cut on the lower palpebral margin a notch, perforation, or aperture, which establishes a communication between the external and internal portions of the artificial eye. This allows the lachrymal fluid to find its level, prevents its stagnation in the concavity of the artificial eye, and re-establishes the absorbent

functions of the lachrymal canal. This notch is shewn at E, Figures 5, 6, 7, and 8. The same arrangement also preserves the artificial eye in perfect equilibrium, and prevents the falling in of the lid, which falling in easily occurred in artificial eyes, of which the centre of the lower palpebral margin pressed on the appendages of the orbit, which very soon gave way and lost their original shape.

The establishment of such a communication, made in the shape of a more or less distinct notch, similar to that indicated by the letter E, in Figures 5, 6, 7, and 8, or any perforation made in any part of the lower palpebral margin or section in artificial eyes of whatever description, whether of modern or ancient form, and possessing the properties which I ascribe to such notches or perforations, is the distinctive peculiarity of this part of my Invention.

I give to those artificial eyes, the shape of which is regulated according to the directions which are laid down in the different parts of my Specification, the name of artificial eyes with natural movements, with permanent equilibrium, and with notch in the lower palpebral margin, for preventing the accumulation of mucosities.

And having now described the nature of my said Invention, and in what manner the same is to be performed, I declare that what I claim as my Invention is,—

First, the proportioning of the length of artificial eyes in such manner that their caruncular and temporal portions shall not exert pressure upon the corresponding organic parts of their orbit.

Second, making the necessary shortening of the eye for this purpose only in the temporal section.

And, third, the formation of a notch, perforation, or aperture in the inferior palpebral section of artificial eyes, for the purpose of establishing a communication between the interior and exterior thereof, and thus allowing the lachrymal fluid to maintain its proper level in the hollow of the eye, and restoring the functions of the lachrymal canal.

In witness whereof, I, the said Auguste Boissonneau, have hereunto set my hand and seal, this Thirtieth day of January, One thousand eight hundred and fifty-five.

AUGUSTE BOISSONNEAU. (L.S.)

LONDON:
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A.D. 1854. August 5. No. 1715.

BOISSONNEAU'S Specification.

(1 SHEET.)

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

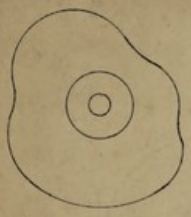


FIG. 5.

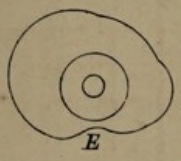


FIG. 6.

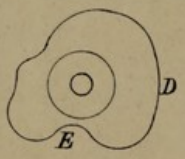


FIG. 7.

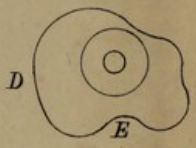
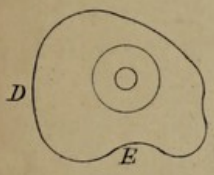


FIG. 8.



The filed drawing is not colored.

Drawn on Stone by Malby & Sons.

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