

Specification of Julius Jeffreys : climatic apparatus.

Contributors

Jeffreys, Julius, 1800-1877.

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A.D. 1864, *25th JULY.* N° 1849.

S P E C I F I C A T I O N

OF

JULIUS JEFFREYS.

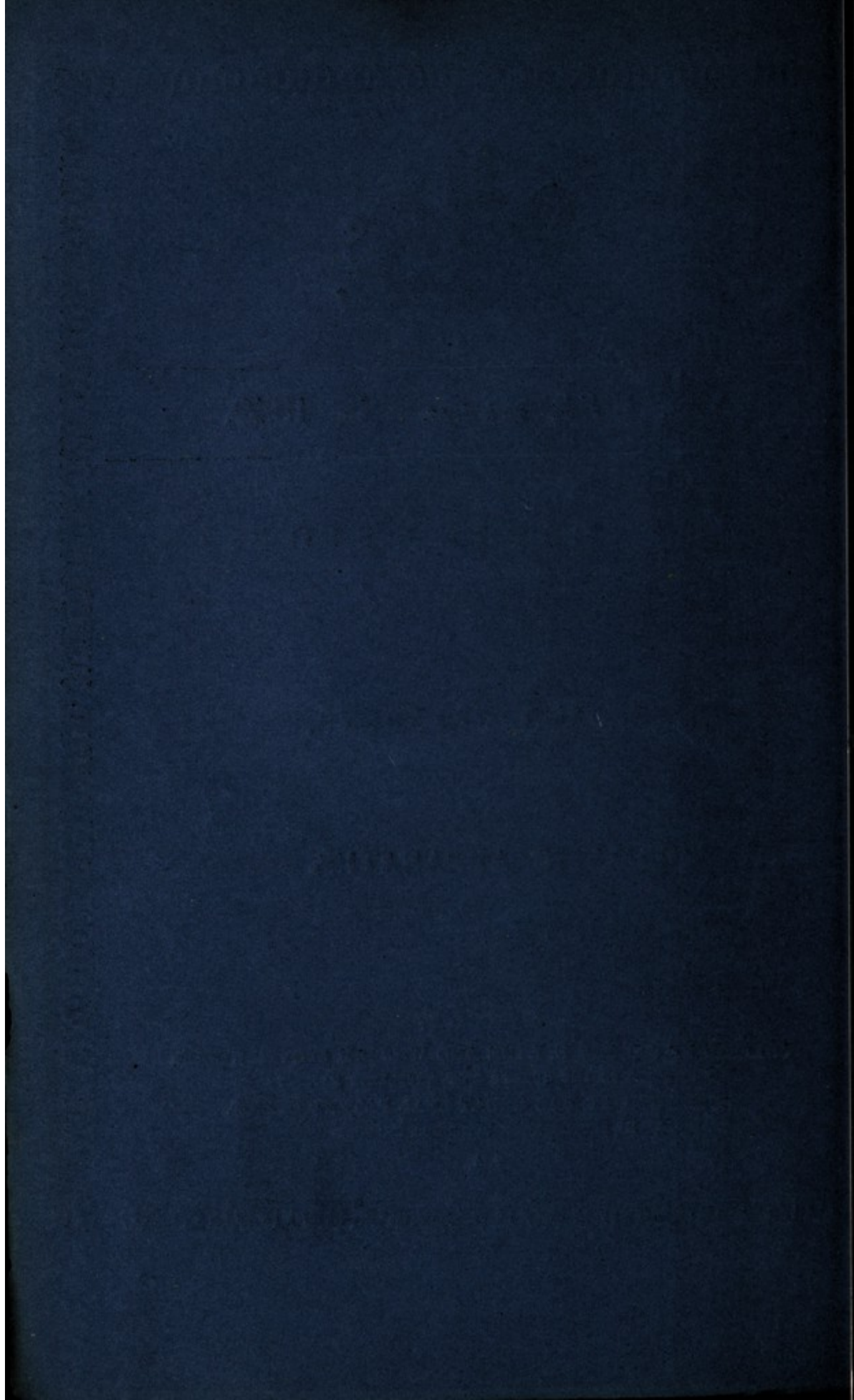
CLIMATIC APPARATUS.

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
PRINTERS TO THE QUEEN'S MOST EXCELLENT MAJESTY:
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Prior Ed.

1865.





A.D. 1864, 25th JULY. N° 1849.

Climatic Apparatus.

LETTERS PATENT to Julius Jeffreys, of Drymona, Upper Norwood, in the the County of Surrey, for the Invention of "**IMPROVEMENTS IN CLIMATIC APPARATUS.**"

Sealed the 27th December 1864, and dated the 25th July 1864.

PROVISIONAL SPECIFICATION left by the said Julius Jeffreys at the Office of the Commissioners of Patents, with his Petition, on the 25th July 1864.

I, **JULIUS JEFFREYS**, of Drymona, Upper Norwood, in the County of Surrey, do hereby declare the nature of the Invention for "**IMPROVEMENTS IN CLIMATIC APPARATUS,**" to be as follows:—

My first improvement is an apparatus acting on the principles of the respirator, and consisting of a metallic case which guides the breath currents not horizontally as in that instrument, but vertically and alternately downwards and upwards through coils of fine wire, separated or not by intervening and parallel plates of metal. By this arrangement an effect is obtained corresponding with the gradative conduction of a true respirator.

This apparatus is either so placed in a fold of cloth as to be indistinguishable from a handkerchief wrapper when tied round the face, or it is formed into an instrument to be held in the hand and applied to the mouth or to the mouth and nostrils.

My second improvement relates to the respirator. I dispense with the metal lattices which carried the several layers of the wirework by forming these layers of bruized wire which when coiled into flat skeins form self-supporting

Jeffreys' Improvements in Climatic Apparatus.

and straight and parallel lines of wire; these lines are then held in their position at minute distances apart by transverse bands of flatted wire lying on the inside of each skein across the top, middle, and bottom of it, these bands are soldered to every upright wire of the skein, there being separate bands for each of the layers of wire which form the two sides of the skein; several of 5 such skeins kept distinct from each other by slow conducting cords of silk constitute together the operative portion of a respirator.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Julius Jeffreys, in the Great Seal Patent Office on the 25th January 1865. 10

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JULIUS JEFFREYS, of Drymona, Upper Norwood, in the County of Surrey, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-fifth day of July, in the year of our Lord 15 One thousand eight hundred and sixty-four, in the twenty-eighth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Julius Jeffreys, Her special licence that I, the said Julius Jeffreys, my executors, administrators, and assigns, or such others as I, the said Julius Jeffreys, my executors, administrators, and assigns, should at any time 20 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 CLIMATIC APPARATUS,**" upon the condition (amongst others) that I, the said Julius 25 Jeffreys, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, 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 30 the said Letters Patent.

NOW KNOW YE, that I, the said Julius Jeffreys, do hereby declare the nature of the 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, that is to say:— 35

My first improvement is an apparatus acting on the principles of the respi-

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rator, and consisting of a metallic case which guides the breath currents not horizontally as in that instrument, but vertically and alternately downwards and upwards through coils of fine wire separated or not by intervening and parallel plates of metal. By this arrangement an effect is obtained corresponding with
 5 the gradative conduction of a true respirator.

This apparatus is either so placed in a fold of cloth as to be undistinguishable from a handkerchief wrapper when tied round the face, or it is formed into an instrument to be held in the hand and applied to the mouth or to the mouth and nostrils.

10 My second improvement relates to the respirator. I dispense with the metal lattices which carried the several layers of the wirework by forming these layers of bruised wire which when coiled into flat skeins or coils forms self-supporting and straight and parallel lines of wire; these lines are then held
 15 lying on the inside of each skein across the top, middle, and bottom of it, these bands are soldered to every upright wire of the skein, there being separate bands for each of the layers of wire which form the two sides of the skein; several of such skeins kept distinct from each other by slow conducting cords of silk constitute together the operative portion of a respirator.

20 DESCRIPTION OF THE DRAWINGS.

Figure 1 is a flat view; and Figure 2 an edge view of a thin plate *a*, of metal or other substance carrying on each side of it, and from end to end, cylindrical tubes *b*, *b*, *b*, contiguous to each other and formed of fine coiled wire similar to that known as "bullion". A length of such bullion is carefully
 25 wound round the plate slightly on the stretch that the coils may not touch each other. One, two, or more of such plates mounted with wire cylinders are placed together with a naked plate between each pair to keep the coils on them from becoming entangled and constitute the operative part of the apparatus.

30 This operative wire series is placed in a stiff case *c*, *c*, *d*, *d*. Figure 3 a face view, and Figure 4 a section formed of a shorter plate *c*, *c*, the curve of which fits against the lower lip and chin, and a longer one *d*, *d*, which is curved parallel to *c*, *c*, but arches over it above to reach the upper lip, and leave enclosed a mouth space *e*, *e*, to convey the breath currents to and from the operative
 35 cylinders. The arrows show the currents of the breath when it is passing out since the coils of wire are not massed together like the sides of a continuous tube, but from the slight stretching have merely a linear continuity, their several portions acquire in use different grades of temperature, their warmest

Jeffreys' Improvements in Climatic Apparatus.

portions being their upper ends next the mouth space, and their least warm their lowest ends next the outer air. Thus that gradative heat conductive action is established by which the utmost warmth desired can be recovered from each ex-breath and the utmost also imparted to each succeeding in-breath. In no other way can conductive action be so well established in a climatic apparatus with vertical breath currents or currents running lengthways of the conducting mass; but I also claim the employment for this purpose of wire of any kind and aggregated in any manner.

Figure 5 shows the apparatus fixed in a scarf wrapper which screens it from view, it is to be passed round the neck and tied over the apparatus in front. On each side of the apparatus are fixed wire bars *e, e*, with eyes at top and bottom and corresponding ones on the scarf which is locked to it by a pin *g, g*, on each side passed through all the eyes. By removing the pins the apparatus can be detached for use separately held in the hand or for being washed.

My improvement in the manufacture of the metal work of respirators is as follows:—I produce each skein or flat coil of metal work by taking three similar plates of thin metal each a little longer than the skein or flat coil to be made and of the breadth of such coil. Each plate has at one end a narrow notch, say a quarter of an inch long and at about one-eighth of an inch from the other end of the plate there is a hole about an eighth inch in diameter. These three plates are so placed upon each other that while the middle plate has its notched end pointing one way the two outer plates have their notched ends pointing the opposite way by which the hole in the middle plate lies between and opposite to the notches of the two outer plates. The middle plate comes between and opposite the holes of the outer plates. The three plates being thus held I bind the three plates together with a narrow band of flattened wire previously coated with a suitable solder by preference made with tin and bismuth. This wire band traverses the longer sides of the triplet of plates close to their edges, and if desired it is also stretched along the mid line of the triplet on both sides forming a middle band parallel to the bands at the edges. Upon the three plates thus banded wire (to form the operative metal work of the skein or flat coil) is carefully wound cross ways around the triplet of plates between the notch at the one end of it and the holes at the other, the wire lying over both sides of the triplet in parallel lines but at minute distances apart. A series of triplets thus wound with wire and having blank plates between each pair of triplets is then heated in an oil bath until the solder on the bands is well fused. The wire wound and heated triplets are then placed under a metal press and retained under pressure till cold. When cold the triplets are removed and the middle plate of each triplet is

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withdrawn from between the two outer ones by means of power applied to two stout wire loops or hooks, one of them passed through the two holes in the two outer plates at one end of the triplet, and the other loop or hook through the hole in the middle plate's hole at the other end of the triplet. The metal skein
5 or flat coil can then be withdrawn from off the outer plates. The skeins or flat coils thus produced are lastly flattened in a press.

In witness whereof, I, the said Julius Jeffreys, have hereunto set my hand and seal, this Twenty-fourth day January, in the year of our Lord One thousand eight hundred and sixty-five.

10

JULIUS JEFFREYS. (L.S.)

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Wheat's Apparatus in Climatic Apparatus

withdrawn from between the two outer ones by means of power applied to two stout wire loops or hooks, one of them passed through the two holes in the two outer plates at one end of the triplet, and the other loop or hook through the hole in the middle plate's hole at the other end of the triplet. The metal chain or cord can then be withdrawn from off the outer plates. The chains or flat coils thus produced are lastly flattened in a press.

In witness whereof, I, the said Julius Wheat, have hereunto set my hand and seal, this Twenty-fourth day of January, in the year of our Lord One thousand eight hundred and sixty-five.

JULIUS WHEAT. (Sd.)

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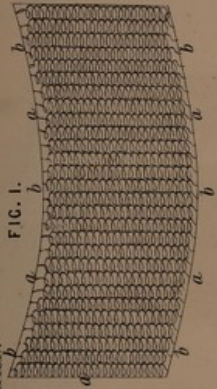


FIG. 3.

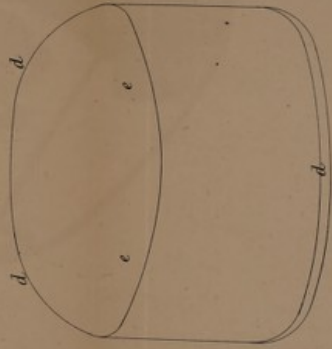


FIG. 4.

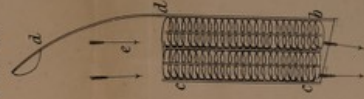
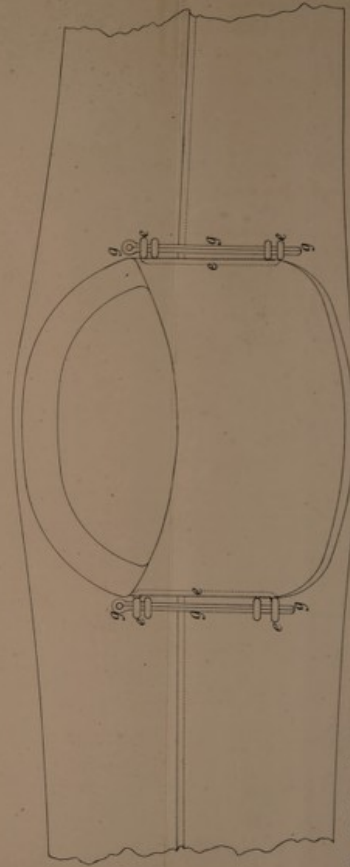


FIG. 5.



The filed drawing is partly colored.

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