

## **Specification of Henry Negretti and Joseph Warren Zambra : health indicator.**

### **Contributors**

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A.D. 1874, 19th OCTOBER. N° 3585.

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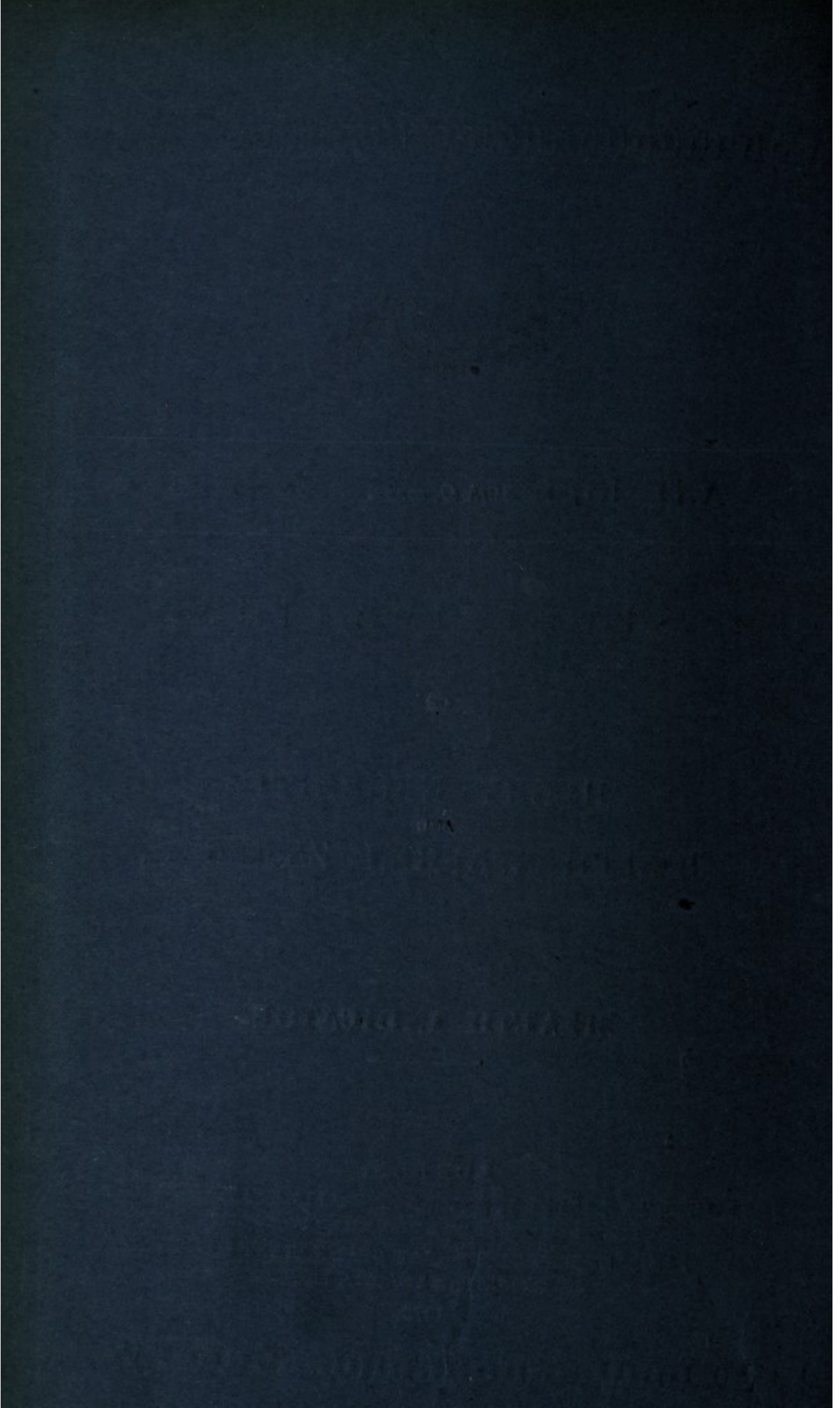
SPECIFICATION  
OF  
HENRY NEGRETTI  
AND  
JOSEPH WARREN ZAMBRA.

HEALTH INDICATOR.

LONDON:  
PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,  
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1875.







A.D. 1874, 19th OCTOBER. N° 3585.

### Health Indicator.

*(This Invention received Provisional Protection only.)*

**PROVISIONAL SPECIFICATION** left by Henry Negretti and Joseph Warren Zambra at the Office of the Commissioners of Patents, with their Petition, on the 19th October 1874.

We, HENRY NEGRETTI and JOSEPH WARREN ZAMBRA, both of 5 Holborn Viaduct, in the City of London, Meteorological Instrument Makers, do hereby declare the nature of the said Invention for "AN IMPROVED HEALTH INDICATOR OR INSTRUMENT TO BE USED IN THE DIAGNOSIS OF DISEASES," to be as follows:—

Our Invention relates to that class of instruments popularly known as 10 "clinical thermometers," which on being applied to the body of a person will indicate whether such person be in health or not.

The instrument is constructed upon the principle that the body of a healthy person should be at a given and well-known temperature, say 98° Fahr.; if therefore the body of any one exceeds that temperature it 15 will indicate a state of fever, more or less acute. If, on the contrary, the temperature of the body be below the normal state it will indicate that there is a want of vital heat, and that the patient is in a low state of health,



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*Negretti & Zambra's Improved Health Indicator.*

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These instruments are not required and are never used to measure the degree of heat present, or to which they are exposed, but only to indicate whether the temperature of the body be either above or below the normal point; for this reason therefore only a small portion of the thermometer scale (or a very few degrees) is used, and the instruments 5 are made very sensitive. They cannot therefore be properly denominated "thermometers;" as a matter of fact, however, these instruments have usually been made with a tube having a very fine bore, and graduated with a portion of the thermometric scale. The bulb is supplied with mercury, which owing to the fineness of the bore it was difficult to see. 10 These instruments were also of an expensive character, and not likely therefore to be used by any but professional men.

The object of our Invention is to popularize the use of instruments of this class by so modifying their construction that they will be very considerably reduced in price, the facility in reading them will be 15 increased, and the liability to derangement by accidents other than breakage almost entirely prevented.

In carrying out our Invention we employ colored fusel oil or creosote for the indicating column, as colored liquid is more easily seen than the very fine column of mercury which has heretofore been employed in 20 instruments of this kind.

The tube of our improved instrument is made with a wide bore just above the bulb, or a narrowed elongation of the bulb, such wide bore or elongation of the bulb being of sufficient length and capacity to take the column of colored liquid up to that point of temperature (as 25 indicated by a thermometer) at which it is required to take the medical observation. At this point, say  $90^{\circ}$  of the thermometric scale, the bore is gradually narrowed to a very fine one, so that from  $90^{\circ}$  up to, say,  $100^{\circ}$ , the instrument will be very sensitive.

At some point on the glass tube is made a mark, which we will call 30 zero. This point if compared with a thermometer will be at about  $98^{\circ}$ , which is said to indicate the temperature of good health. The tube is then graduated into arbitrary divisions above and below this zero point, and the colored liquid by rising above or falling below that point will indicate either a feverish or a low state of health. 35

In constructing our improved instruments we prefer to use fusel oil properly colored rather than alcohol, as fusel oil does not boil at



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so low a temperature as water, and therefore should the instrument become deranged by an air bubble getting into the bore it will only be necessary to immerse the bulb in hot water, when the air bubble will be driven into the air chamber above, and will remain there.

- 5 In order that observations may be taken at leisure and with accuracy, we sometimes adapt to the outside of the tube a sliding index, which the observer can slide up or down the tube to the point where the column of fusel oil or other liquid has stopped. He may then remove the instrument from the patient and examine it at leisure.
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LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,  
Printers to the Queen's most Excellent Majesty. 1875.

REPORTS OF THE LANCET

in large quantities of water, and therefore should be continued  
being engaged by an air bubble getting into the tube it will only  
be necessary to increase the bulb in hot water, when the air bubble will  
be driven into the air chamber above, and will remain there.  
In order that observation may be taken at leisure and with accuracy,  
we sometimes attach to the outside of the tube a sliding index, which the  
observer can slide up or down the tube to the point where the column  
of fluid oil or other fluid has stopped. The way then to remove the  
instrument from the patient and examine it at leisure.

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