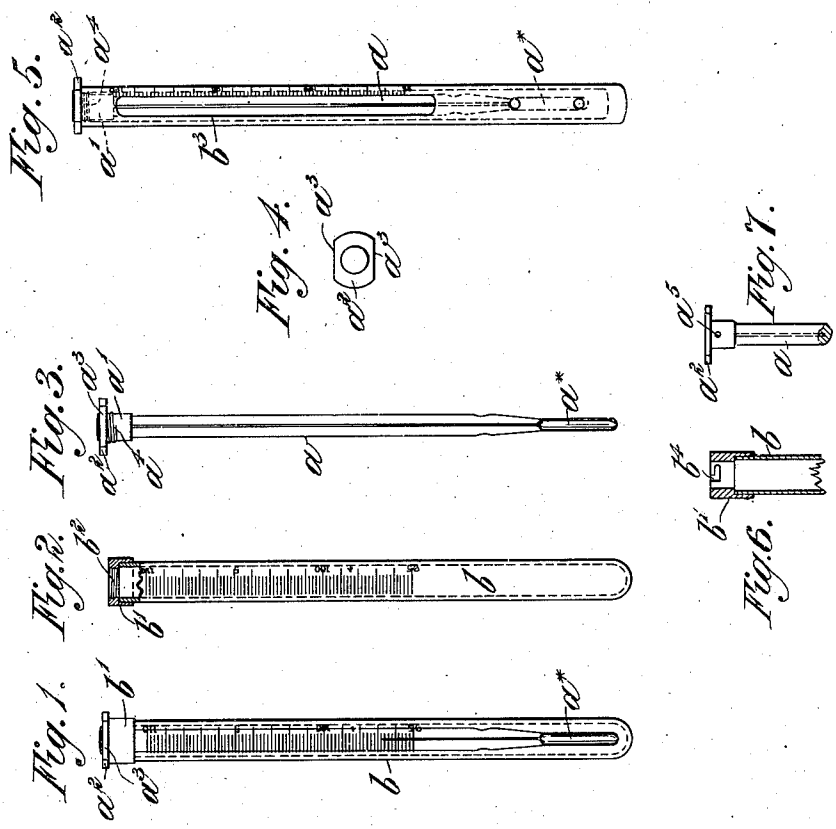
No. 666,094. Patented Jan. 15, 1901.

J. J. HICKS.

CLINICAL THERMOMETER.

(No Model.)



Witnesses:
H. C. Hammond
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Inventor:
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UNITED STATES PATENT OFFICE.

JAMES J. HICKS, OF LONDON, ENGLAND.

CLINICAL THERMOMETER.

SPECIFICATION forming part of Letters Patent No. 666,094, dated January 15, 1901.

Application filed July 31, 1900. Serial No. 25,475. (No model.)

To all whom it may concern:

Be it known that I, JAMES JOSEPH HICKS, a subject of the Queen of Great Britain, residing at London, England, have invented certain new and useful Improvements in Clinical Thermometers, of which the following is a full, clear, and exact description, and for which I have made application for patent in Great Britain, dated May 8, 1900.

Heretofore it has been proposed to employ a thermometric tube having no scale or any kind of engraving thereon in combination with a graduated glass tube, into which the thermometric tube is inserted to enable the temperature to be read. In such case the graduated tube was fixed in a protecting-tube fitting within and capable of rotation in relation to an outer protecting-tube, and such tubes were provided with openings in their sides which when coincident enabled the column of mercury and the graduations on the glass tube to be seen. The outer protecting-tube was furnished with a removable cap, which when replaced after the thermometric tube was placed within the graduated glass tube held the former in position with its bulb against the bottom end of the graduated tube.

The above-described arrangement is clumsy, troublesome of manipulation, and liable to injury.

Now according to my invention I produce a neat, simple, and readily-manipulated arrangement of parts in which the thermometric tube is less liable to fracture than in the former proposed arrangement.

I will describe my invention by the aid of the accompanying drawings, in which—

Figure 1 is an exterior view of the thermometric tube in position within its graduated case. Fig. 2 is an exterior view, partly in section, of the graduated case when made of glass. Fig. 3 is an exterior view, and Fig. 4 an end view, of the thermometric tube. Fig. 5 is an exterior view of a graduated case made of ebonite or other material than glass. Fig. 6 is a sectional view of the upper end of the graduated case; and Fig. 7 an exterior view of the upper end of the thermometric tube, showing a slight modification.

In carrying my invention into effect I also employ a thermometric tube *a*, having no scale or any kind of engraving thereon, and a graduated outer tube *b*, into which the thermometric tube is placed; but I dispense with the outer protecting-tubes heretofore proposed to be used, and according to my invention I fix the upper end of the thermometric tube *a* in a cap *a'*, having an extended head a^2, preferably formed with two flattened sides a^3 to prevent rolling, and having a screw-thread a^4 immediately below such head a^2 of preferably only two turns. I also fix the open end of the graduated tube *b* within a collar *b'*, having an internal screw-thread b^2 to receive the screw-thread a^4. The length of the graduated tube *b* in relation to the thermometric tube *a* is such that when the cap *a'* of the latter is screwed fully home into the collar *b'* the lower end of the bulb a^* shall be just free of the bottom of the graduated tube, thereby avoiding the liability to fracture which existed in the former arrangement from the fact that in such former arrangement the bulb was pushed closely against the bottom of the graduated tube. The thermometric tube *a* is also fixed in its cap *a'* in such position that when fully screwed home in the graduated tube *b* the column of mercury shall face the divisions or scale of the graduated tube *b*.

The graduated tube *b* may be made of glass, in which case it is a complete tube closed at one end, as shown at Figs. 1 and 2; but it may be made of metal, ebonite, or other material than glass, in which latter cases a longitudinal opening b^3 would be made in the side thereof to enable the column of mercury to be seen, and the scale would be marked close to the edge of such opening.

If desired, instead of employing screw-threads to secure the thermometric tube within the graduated tube the arrangement represented at Figs. 6 and 7 may be adopted. In this modification the upper end of the graduated tube *b* and the cap *a'* of the thermometric tube are made to fit each other, and in order to insure the thermometric column to be placed in correct relation with the divisions or scale I form a bayonet-groove b^4 within the upper end of the graduated tube *b*, and I fix a pin a^5 on the cap *a'*, so that when the pin is caused to enter such groove

and then the thermometric tube turned till the pin comes to the end of the horizontal part of said groove the two parts shall be in correct relation with each other.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In a clinical thermometer, the combination of a plain thermometric tube, a cap fixed on the upper end of said tube, an extended head to said cap, flattened sides to such extended head, an external screw-thread immediately below said head, a graduated outer tube closed at one end and slightly longer than the plain thermometric tube, a collar fixed on the open end of the graduated tube, and an internal screw-thread within the collar to receive the screw-thread of the cap on the thermometric tube, which latter is so fixed in relation to its cap that when screwed fully home into the graduated tube, the bulb shall not touch the bottom of said graduated tube, and the thermometric column shall face the divisions or scale of the graduated tube, substantially as herein set forth.

2. In a clinical thermometer, the combination of a plain thermometric tube; a graduated outer tube open at top slightly longer than the plain thermometric tube and adapted to expose to view the mercury column in the thermometric tube contained in said outer tube; a suspension-cap fixed on the upper end of the thermometric tube, and means of connection between the said cap and the top of the outer tube whereby the thermometric tube is suspended in fixed relation to the outer tube and to the scale thereon and with its bulb out of contact with the bottom of the outer graduated tube, as explained.

In testimony whereof I affix my signature in presence of two witnesses.

JAS. J. HICKS.

Witnesses:
B. J. B. MILLS,
WM. GIRLING.