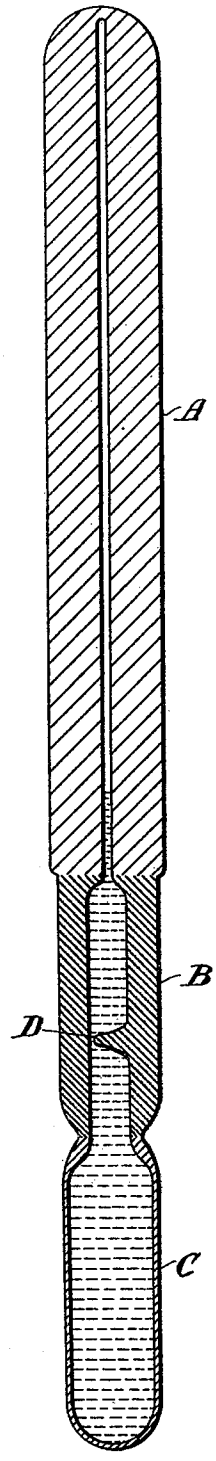
No. 613,190. Patented Oct. 25, 1898.

F. COSSOR.

CLINICAL THERMOMETER.

(Application filed Feb. 21, 1898.)

(No Model.)



Witnesses
Walter R. Tubbs.
E. A. Bacock.

Inventor.
Frank Cossor
By his Attys.
Baldwin Davidson & Wright

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANK COSSOR, OF LONDON, ENGLAND, ASSIGNOR TO S. MAW, SON, & THOMPSON, OF SAME PLACE.

CLINICAL THERMOMETER.

SPECIFICATION forming part of Letters Patent No. 613,190, dated October 25, 1898.

Application filed February 21, 1898. Serial No. 671,141. (No model.)

To all whom it may concern:

Be it known that I, FRANK COSSOR, meteorological glass-blower, a subject of the Queen of Great Britain, residing at 15 Clerkenwell Green, London, England, have invented certain new and useful Improvements in Clinical Thermometers, of which the following is a specification.

This invention has for its object improvements in clinical thermometers, whereby while the indestructible index is obtained as now usual the column of mercury in the indicator-tube can be readily shaken down below the scale with the application of very slight force. For this purpose I form between the fine-bore indicator portion of the thermometer-tube and the ordinary sharp, sudden constriction by which the indestructible index is obtained an enlargement of the fine bore capable of containing a comparatively considerable weight of mercury. The best way of effecting this is to make the portion of the tube which is next to the bulb of larger bore than the remainder of the tube and to form the constriction in this larger portion of the bore.

The drawing annexed shows, on an enlarged scale, a longitudinal section of a clinical thermometer constructed in the above manner.

A is a piece of ordinary glass tube with a fine bore, such as used in ordinary clinical thermometers.

B is a length of flint-glass tube of larger bore (preferably a flattened bore) joined at one end to the end of A.

C is a bulb containing mercury joined to the other end of B.

D is a short sudden constriction formed in the bore of the tube B near to the bulb and adapted, as now usual in registering thermometers, for restraining all mercury which is forced past it when the bulb is heated, from passing back to the bulb when the bulb cools down.

The object of forming the length of tube B with a flattened bore is to allow of the constriction D being more readily formed than in the ordinary clinical thermometer.

When a clinical thermometer formed in the above way is used, mercury flows from the bulb past the constriction and into the indicator-tube in one unbroken column as the bulb becomes heated, and when the mercury has risen to the temperature of a patient and the indestructible index has been formed by means of the constriction the instrument, when it has been allowed to cool, requires only a very slight swing to cause the return of the column of mercury from the indicator-tube, the momentum imparted by the slight swing to the comparatively large body of mercury within the enlarged portion of the bore causing a large flow of mercury past the constriction and into the bulb, and thereby allowing the column of mercury to pass back freely from the indicator-tube.

I would state that I am aware that in that class of thermometers in which the column of mercury after rising from the bulb when the bulb is heated is always free to pass back to the bulb on the bulb being cooled and in which a small portion of the column of mercury is separated from the remaining portion by a small air-speck, which short or index length of the column of mercury is left behind in the indicator-tube when the bulb cools and remains, indicating the temperature to which the thermometer was heated, it has before been proposed to form an enlargement of the bore near to the bulb, so that the short or index length of the column of mercury when shaken down into this enlarged portion of the bore may be retained therein and hindered from joining the main body of mercury in the bulb, and also that it has been proposed to form a contraction between the bulb and the enlarged portion of the bore to assist in retaining this short or index length of mercury from entering the bulb. I am also aware that ordinary clinical thermometers when they have been badly made, so that the column of mercury rises too high in the tube for allowing of the required range of temperature being registered, an extremely small enlargement of the bore has been made near to the constriction of the bore, so as to reduce the height to which the column of mercury rises in the tube for any given temperature; but such small enlargement would practically have no effect in enabling the column of mer-

cury to be more readily shaken back from the tube and would not effect the object of my invention.

What I claim is—

1. A clinical thermometer having between the bulb and the fine bore of the indicator-tube, a length of tube of larger bore than that of the indicator-tube and which has in it a sharp sudden constriction adapted to break the column of mercury when the bulb cools, and stop all mercury from passing back from the indicator-tube to the bulb.

2. A clinical thermometer having between the sharp constriction and the fine bore of the indicator-tube an enlargement of this fine bore, capable of containing a comparatively large body of mercury so that when the thermometer has been used, and this enlargement has become filled with mercury, and the mercury has risen in the indicator-tube, a slight swing or jerk will, after the thermometer has been allowed to cool, impart sufficient momentum to the mercury in the enlargement to cause a large flow of mercury past the constriction and into the bulb, and thereby allow the column of mercury to pass back freely from the indicator-tube.

FRANK COSSOR.

Witnesses:
EDWARD W. ISPPOLET,
E. E. SHAW.