

No. 812,560.

PATENTED FEB. 13, 1906.

W. F. FRUEHAUF.
CLINICAL THERMOMETER.
APPLICATION FILED APR. 1, 1905.

Fig: 1.



Fig: 2.

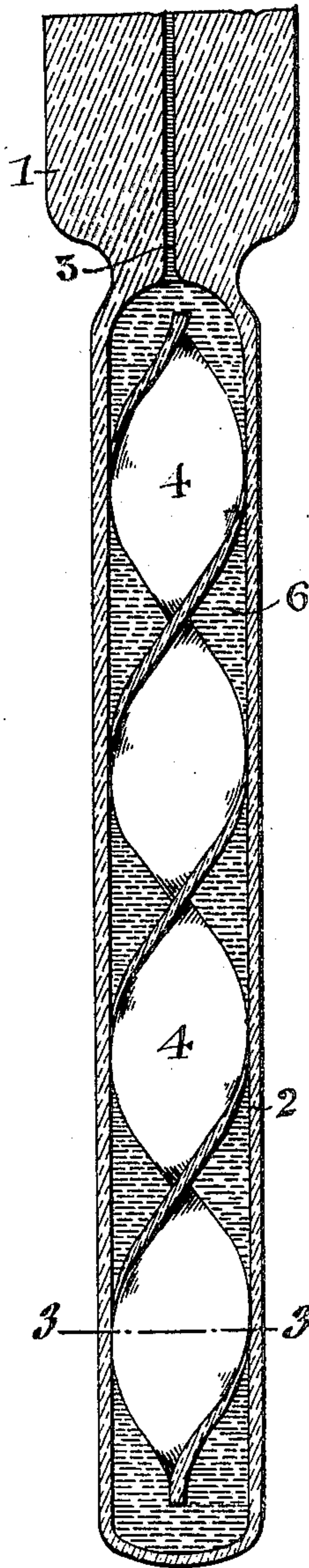
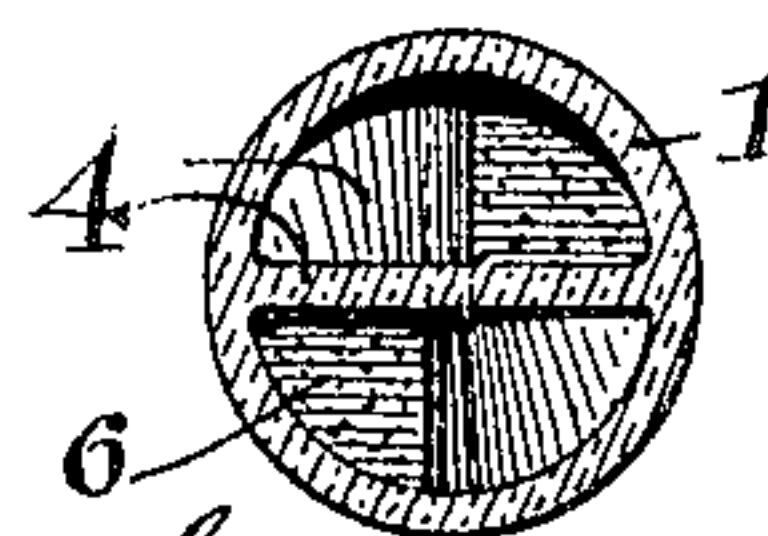


Fig: 3.



Witnesses
W. F. Fruehauf
W. F. Fruehauf

Inventor
William F. Fruehauf.
By his Attorneys *Lawrence Goebel.*

UNITED STATES PATENT OFFICE.

WILLIAM F. FRUEHAUF, OF PLAINFIELD, NEW JERSEY.

CLINICAL THERMOMETER.

No. 812,560.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed April 1, 1905. Serial No. 253,356.

To all whom it may concern:

Be it known that I, WILLIAM F. FRUEHAUF, a citizen of the United States, and a resident of Plainfield, in the county of Union and State of New Jersey, have invented certain new and useful Improvements in Clinical Thermometers, of which the following is a specification.

This invention relates to clinical thermometers, and has among its objects the provision of such an instrument in which the mercury or other expansible fluid employed is so contained as to present a large surface to the part of the body from which the temperature is taken and whereby the heat absorbed by the surface of the thermometer is quickly transmitted through the mercury, so that the thermometer is rendered very rapid in its action.

A further object of the invention is to provide means for reinforcing the bulb of the thermometer, whereby the liability of breaking the same by pressure during use is minimized.

With these and other ends in view the invention consists in a thermometer embodying the novel features and combinations of parts to be hereinafter described, and recited in the claims.

In the accompanying drawings, illustrative of one embodiment of the invention, Figure 1 is an elevation of the improved clinical thermometer. Fig. 2 is a vertical central section of the lower or bulb portion thereof drawn on a larger scale, and Fig. 3 is a horizontal transverse section taken on line 3 3, Fig. 2.

Similar characters of reference indicate corresponding parts throughout the several views.

In the drawings, 1 denotes the tube or body of the improved thermometer, which is preferably of the usual prismatic cross-section, but can be of any suitable form, being made of glass and graduated in the usual manner.

The lower portion or bulb 2, which serves as a reservoir or container for the mercury or other expansible fluid 6, is preferably formed integral with the tube and is of cylindrical form, as shown. This bulb is in communication at its upper end with the bore 3 of the tube 1. Extending longitudinally of the bulb 2 and spaced from the ends thereof is a helically-twisted plate or partition 4, formed from a flat plate into essentially the shape of the ordinary twisted auger. The partition 4 is preferably made of glass like the bulb and

is maintained rigidly in the position shown by being welded throughout the length of its side edges to the inner surface of the bulb 2 during the course of manufacture. The partition 4 is therefore of a width corresponding to the inner diameter of the bulb and connects diametrically opposite points in the side wall of the same, as shown in Fig. 3. The bulb 2 is thus divided into two helical chambers or channels in which the mercury is contained, said channels communicating with each other at the ends of the bulb from which the upper and lower edges, respectively, of said partition are spaced, so that the circulation of the mercury in the bulb is not impeded and the passage of the same to the bore 3 readily permitted.

The partition 4 displaces a comparatively large amount of mercury, so that the layer of the latter which is adjacent to the walls of the bulb is considerably reduced in thickness as compared with that in ordinary thermometers, the available heating-surface of the bulb, however, not being decreased. It is therefore manifest that when the thermometer is in use, as when inserted beneath the tongue or into the armpit or other part of the patient's anatomy, the absorption of heat by the mercury and the consequent rise of the latter in the tube take place very rapidly.

Another cause for the rapid effect upon the mercury is that the glass partition in the bulb being welded to the latter, as explained, and of a high specific heat absorbs the heat directly and rapidly from the walls of the bulb and transmits the same to the inner portion of the mercury.

By making the partition of helical form the heating-surface thereof is materially increased without decreasing the diameter of the channels at either side of the same. This form of the partition also has the advantage of materially strengthening the bulb against breakage, inasmuch as the partition reinforces the bulb at points throughout its side wall or periphery.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A clinical thermometer having in the bulb thereof a helical partition of a width corresponding to the inner diameter of said bulb.

2. A clinical thermometer having a helical partition extending between diametrically opposite points in the side wall of the bulb.

3. In a clinical thermometer, a helically-

twisted plate or partition welded at both side edges to the inner surface of the bulb.

4. In a clinical thermometer, a helically-twisted partition extending longitudinally of
5 the bulb and welded throughout the length of both side edges to the side wall of the same.

5. A clinical thermometer having a partition attached at both side edges to the side wall of the bulb and spaced from the ends
10 thereof.

6. A clinical thermometer having a helical

partition in the bulb thereof attached at both side edges to the side wall of the same and spaced from the ends thereof.

In testimony that I claim the foregoing as
my invention I have signed my name in pres-
15 ence of two subscribing witnesses.

WILLIAM F. FRUEHAUF.

Witnesses:

PAUL GOEPEL,

H. E. ROCKWELL.