To all whom it may concern:

Be it known that we, HARRY VAUGHAN and JAMES W. ARROWSMITH, citizens of the United States, residing at Morristown, in the county of Morris and State of New Jersey, have invented certain new and useful Improvements in Clinical-Thermometer Shields, of which the following is a specification.

Our invention relates to clinical-thermometer shields; and its object is to provide a temporary covering that may be discarded after once using, whereby rendering the transfer of infected matter from one patient to another practically impossible, for the reason that neither the bulb nor the body of the clinical thermometer ever comes into actual contact with the person whose temperature is being taken.

Another object of our invention is the production of thermometer-shields for single application which fit the bulb of a clinical thermometer and lie closely against the sides of the bulb, excluding all the air from immediately about the bulb, in order that the heat reaching the mercury may be transmitted wholly or in greater part by conduction of walls in contact throughout and not by the convection of an intervening air-space.

Our invention consists of an exceedingly thin, flexible, and substantially tubular sheath. It is usually made of diaphanous india-rubber possessing a high degree of elasticity. The latter quality of elasticity is not, however, absolutely essential, and other thin membranous material can be employed, provided it be impervious to moisture and insoluble or difficultly soluble by fluid animal excreta.

The accompanying drawings illustrate the invention.

Figure 1 is a side view in partly vertical section; and Fig. 2 shows a clinical thermometer with our invention applied, the shield being shown in section.

Like letters refer to like parts throughout.

The scale of drawings is greater than actual size.

As illustrated in Fig. 1, our invention is a skin-like hollow sheath a, closed at the end c and having the edge b of its mouth rolled upon itself in the process of manufacture. India-rubber is the preferred material, as it may be formed exceedingly thin, sufficiently attenuated, in fact, to become, upon application, transparent in a degree. When, therefore, our invention is drawn on a clinical thermometer, which is done by inserting the end of the thermometer d into the pouch a and unrolling the normally-rolled edge b toward the top of the instrument, the scale is readable through the skin of the shield, although not greatly stretched by the operation.

We have found in practice that a skin of rubber can be made thin enough to cause no inconvenience in reading the scale when it is covered by the shield, as shown in Fig. 2.

In many instances of use it is not necessary to roll the shield over the scale, and it may be partly unrolled, covering the bulb and part only of the thermometer-stem. When a reading has been taken, the shield is rolled and slipped from the thermometer and thrown away. No part of the instrument touches the patient and no infection can result. It will be noted, further, that the bulb of the thermometer is covered practically skin-tight by the shield, which is yet easily removable, and that every particle of air is excluded from about the bulb as far as possible. It is not thought needful to enlarge here upon the established fact of the lack of conductivity of heat by air. It will be sufficient to state that while both the rubber shield and the glass bulb conduct heat and when those parts are directly in contact the mercury is promptly and fully expanded, with an intervening air-space, the registration of the degree of heat by the thermometer is indefinitely delayed and its accuracy rendered extremely doubtful. When the air-space is present about the bulb, the mercury is never fully affected by radiation across such air-space, for the reason that both the shield and the glass cut off radiation very largely. Intimate and complete surface contact permits direct and rapid heat-conduction from the patient to the mercury when the shield as invented by us and described herein is drawn over a thermometer, because all the air is excluded from about the bulb.
Having thus described our invention, what we claim, and desire to secure by Letters Patent of the United States, is—

1. The combination with a clinical thermometer of a temporary shield applied thereto while in use and closely covering the bulb of the thermometer and excluding the air from said bulb, such shield being a sheath closed at one end, impervious to moisture and insoluble, and consisting of thin, flexible material.

2. The combination with a clinical thermometer of a temporary shield applied thereto while in use and closely covering the bulb of the thermometer and excluding the air from said bulb, such shield being a sheath closed at one end, impervious to moisture and insoluble, and consisting of thin india-rubber.

3. A clinical-thermometer shield comprising a sheath closed at one end, consisting of thin material impervious to moisture and insoluble, the edge of the mouth of the sheath being normally rolled upon itself, and adapted to be unrolled to place it upon a clinical thermometer and rerolled to remove it therefrom.

4. A clinical-thermometer shield comprising a sheath closed at one end, consisting of thin material impervious to moisture, insoluble and elastic, the edge of the mouth of the sheath being normally rolled upon itself, and adapted to be unrolled to place it upon a clinical thermometer and rerolled to remove it therefrom.

In testimony whereof we affix our signatures in presence of two witnesses.

HARRY VAUGHAN.

JAMES W. ARROWSMITH.

Witnesses:

JOHN M. MILLS,
PETER MAXWELL.