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M. D. McKICHAN.
THERMOMETER CASE.

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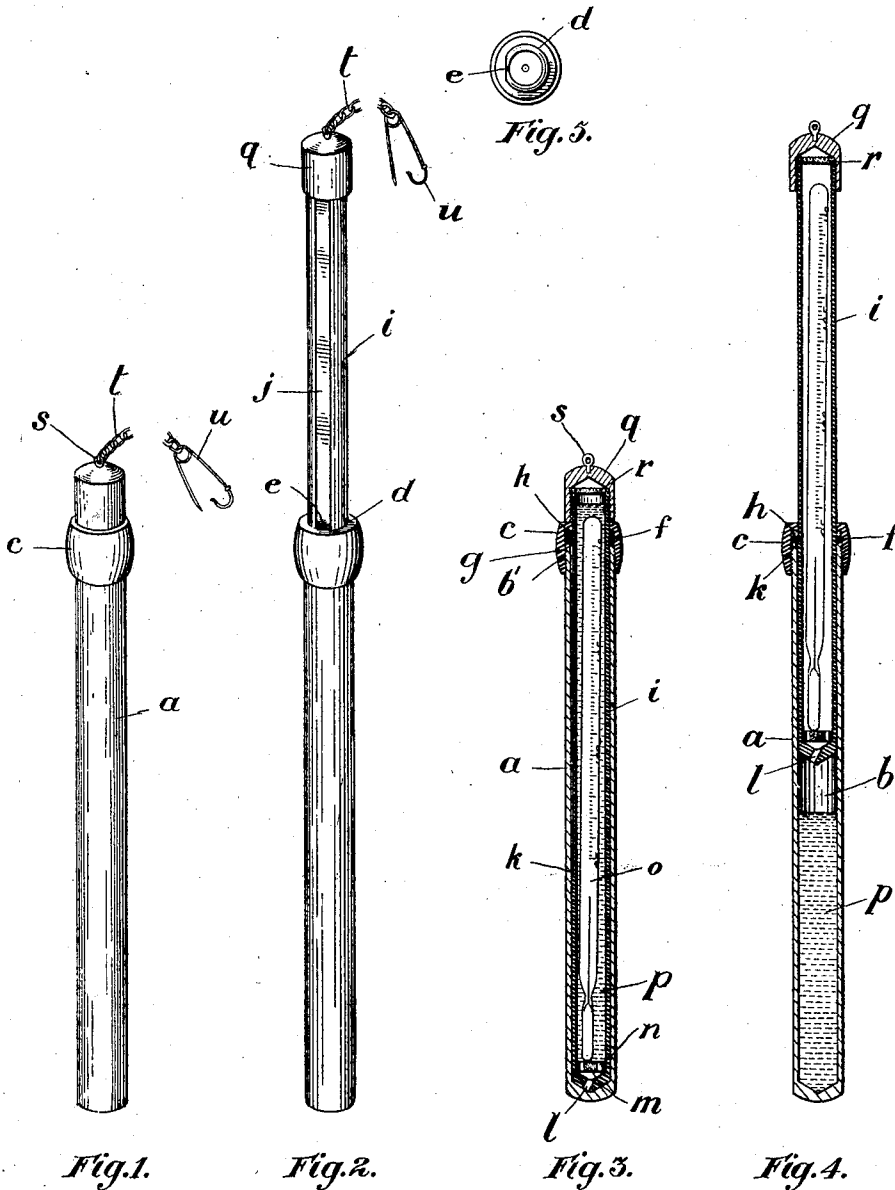


Fig.1.

Fig.2.

Fig.3.

Fig.4.

Witnesses.

H. Hemmison.

W. C. Muir

Inventor.

M. D. McKichan

by E. J. Fetherstonhaugh
att'y.

UNITED STATES PATENT OFFICE.

MATTHEW DONALD McKICHAN, OF DONCASTER, ONTARIO, CANADA.

THERMOMETER-CASE.

No. 837,949.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MATTHEW DONALD McKICHAN, of the village of Doncaster, county of York, Province of Ontario, in the Dominion of Canada, have invented certain new and useful Improvements in Thermometer-Cases, of which the following is a specification.

This invention relates to improvements in thermometer-cases, as described in the present specification and illustrated in the accompanying drawings, that form part of the same.

The invention consists, essentially, of an outer case forming a well and containing a suitable liquid, an inner case telescopically arranged in said outer case and having an orifice through the lower closed end thereof, a thermometer contained within said inner case, and a cap closing the outer end of said inner case.

The object of the invention is to provide a neat and durable case for clinical thermometers which shall be simple to open and permit the removal of the thermometer without handling and whereby the said thermometer is sterilized immediately on being placed in its case.

In the drawings, Figure 1 is a perspective view of the device as carried in the pocket, showing a chain attached to the cap for securing the same to the clothing. Fig. 2 is a perspective view of the device, showing the inner case drawn out to its fullest extent. Fig. 3 is a vertical section through Fig. 1, showing the thermometer completely immersed in the sterilizing liquid. Fig. 4 is a vertical section through Fig. 2. Fig. 5 is a plan view of the top of the device with the cap of the inner case removed.

Like letters of reference indicate corresponding parts in each figure.

Referring to the drawings, *a* is the outer case of the device, preferably formed of a cylindrical shape and closed at one end, forming the well *b* and having the periphery thereof at its open end threaded at *b'*.

c is a ring or gland having the lower portion of the inner wall thereof threaded correspondingly to the threaded periphery *b'* of the case *a* and fitting thereon and the upper portion of the said inner wall extending inwardly beyond said threaded portion and flush with the inner wall of the said case. The flattened portion *e* of the inner wall of said gland, which is here shown having a circular

orifice *d* therethrough, extends slightly over the inner wall of said case, forming a shoulder.

f is a washer inserted in the gland *c* beneath the extending upper portion of the interior wall thereof and having a corresponding flattened surface in the inner circle *g* thereof to the flattened surface *e* of the said gland. *h* is a packing introduced between the washer *f* and the surface of the gland immediately thereabove. *i* is an inner case corresponding in shape to the interior formation of the case *a* and telescopically arranged therein, having a flattened surface *j* for a portion of its length corresponding to the said flattened surface *e* of the gland *c* and forming a shoulder at *k* intermediate of the length of said case *i*. The said case is threaded at its upper end on the outer periphery to receive a cap. It will thus be seen that on drawing the case *i* outwardly from the case *a* the shoulder *k* will come in contact with the under side of the washer *f* at its flattened portion, and thus limit the further movement outward of the case *i*. The lower end of the case *i* is formed, preferably, convex or cone shaped and having a small orifice *l* extending therethrough.

m is a disk of soft resilient material resting close to the bottom of the case *i* and forming a cushion, the said disk having the orifices *n* therethrough, preferably near the edge thereof.

o is a clinical thermometer dropped into the case *i* and resting on the cushioned disk *m* at the bottom of said case.

p is a suitable sterilizing liquid in the well *b* and partially filling the same.

q is a cap having the interior wall thereof threaded and fitting on the corresponding threaded outer periphery of the inner case *i*, and *r* is a gasket within said cap adapted to be compressed on the upper edge of said case by the turning down of the said cap.

s is an eye secured in the top of the cap *q*, and *t* is a suitable chain or cord secured in said eye, having a suitable fastening device *u* on the end thereof for attaching the same to the clothing.

In the use of this thermometer-case the well of the case *a* is partially filled with a sterilizing liquid, and the inner case *i* is then placed therein and the gland *c* screwed into position, pressing downwardly against the packing *h* and making a water-tight joint between the case *a* and the case *i* at the top

of the said case *a*. The thermometer may then be dropped into the case *i*, the soft disk *m* preventing the same from being injured, and the cap *g* fitted to the upper end of the case *i* and screwed partially down. The case *i* may then be pushed downwardly to the bottom of the case *a*, and in the operation of pushing down the said case the liquid *p* is forced into the interior of the case *i* through the orifice *l* in the lower closed end of the said case and through the orifices *n* in the disk *m* and completely surrounds the thermometer *o*. The air contained in the case *i* will escape under the cap *g* and down the outside of the case through the orifice formed by the flattened portion *j* on the outer surface of said case. When the case *i* has been pushed downwardly to its lowest position, the cap *g* may be screwed down tight and the gasket *m* pressed against the top of said case, thus making the same perfectly tight and effectually preventing any leakage of the liquid. It will thus be seen that the thermometer is completely immersed in the sterilizing liquid, and therefore is sterilized immediately on the inner case being pressed downwardly to its lowermost position, and the case may be carried securely in the pocket without danger of the sterilizing liquid escaping from the case.

In order to remove the thermometer, the cap *g* of the case *i* may be loosened in order to allow the ingress of the air to the interior of the case, and on pulling upwardly on the said case the liquid *p* will naturally be sucked downwardly through the orifice *l* at the bottom of the case and all the said liquid drained from the case *i*. The cap may then be removed, when on inverting the said case the thermometer will readily slip out and is ready for use. The orifice *l* in the bottom end of the case *i* is very small, and as the packing *h* makes a secure joint between the case *a* and case *i* and prevents the ingress of air the air-pressure in the orifice *l* will be sufficient to prevent the liquid from flowing through the said orifice.

The flattened portion of the gland *c* abuts the flattened portion of the case *i* and effectually prevents the said case from turning in the outer case when unscrewing the cap *g* from the top end of the said inner case, and thus obviates the necessity of grasping the case *i* with the fingers in order to prevent it turning while removing the cap.

An article such as described forms a very neat and convenient receptacle for carrying a clinical thermometer, which perfectly protects the same from injury and at the same time completely sterilizes the thermometer every time that it is placed in the case and the case properly closed. This advantage is one which readily appeals to medical men, as it obviates the necessity of carrying a number of instruments in separate cases which

have previously been sterilized. The joints are very simple and effectually prevent any leakage of the sterilizing liquid, and the construction is such that the thermometer is removed from the liquid before being removed from the case, and the action of removing the same from the case is merely that of tilting or inverting the case in order to allow the instrument to drop out. Such a case is also very durable and may be readily manufactured of vulcanite or other suitable non-metallic or non-corrosive substance, and as there are no working parts there is nothing to get out of order.

What I claim as my invention is—

1. A thermometer-case, comprising an outer case forming a well and containing a suitable liquid, an inner case telescopically arranged in said outer case and having an orifice through the lower closed end thereof, a thermometer contained within said inner case, and a cap closing the outer end of said inner case, as and for the purpose specified.

2. A thermometer-case, comprising an outer case forming a well and containing a suitable liquid, an inner case telescopically arranged in said outer case and having an orifice through the lower closed end thereof, means secured to the upper end of said outer case for making a water-tight joint between said outer case and inner case, a thermometer contained within said inner case, and a cap closing the outer end of said inner case, as and for the purpose specified.

3. A thermometer-case, comprising an outer case forming a well and containing a suitable liquid and having the periphery thereof threaded at the open end, an inner case telescopically arranged in said outer case and projecting therefrom and having an orifice through the lower closed end thereof, a gland threaded on the interior wall thereof corresponding to the threaded periphery of the outer case and fitting thereon, a suitable packing in said gland engaging the periphery of said inner case, and a cap closing the projecting end of said inner case, as and for the purpose specified.

4. A thermometer-case, comprising an outer case forming a well and containing a suitable liquid and having the periphery thereof threaded at the open end, an inner case telescopically arranged in said outer case and projecting therefrom and having an orifice through the lower closed end thereof and a flattened surface extending for a portion of its length and forming a shoulder, a gland threaded on the interior wall thereof corresponding to the threaded periphery of the outer case and fitting thereon having the inner wall thereof extending inwardly beyond said threaded portion and flush with the inner wall of said case and a flattened portion in said inwardly-extending portion, a washer inserted in said gland beneath the inwardly-

extending portion thereof having a flattened portion corresponding with the flattened portion of the said gland, a suitable packing inserted between said washer and the inwardly-extending portion of said gland, and a cap closing the projecting end of said inner case, as and for the purpose specified.

5. A thermometer-case, comprising an outer case forming a well and containing a suitable liquid and having the periphery thereof threaded at the open end, an inner case telescopically arranged in said outer case and projecting therefrom and having the periphery thereof threaded at the open end and an orifice through the lower closed end and a flattened surface extending from the top thereof downwardly for a portion of its length and forming a shoulder, a gland threaded on the interior wall thereof corresponding to the threaded periphery of the outer case and fitting thereon having the inner wall thereof extending inwardly beyond said threaded portion and flush with the inner wall of said case and a flattened portion in said inwardly-extending portion, a washer inserted in said gland beneath the inwardly-extending portion thereof having a flattened portion corresponding with the flattened portion of the said gland, a suitable packing inserted between said washer and the inwardly-extending portion of said gland, a cap threaded on the interior wall thereof corresponding to the threaded portion of the inner case and fitting thereon and closing said case, and a resilient washer inserted in said cap, as and for the purpose specified.

6. A thermometer-case, comprising an outer case forming a well and containing a suitable liquid and having the periphery thereof threaded at the open end, an inner

case telescopically arranged in said outer case and projecting therefrom and having the periphery thereof threaded at the open end and an orifice through the lower closed end and a flattened surface extending from the top thereof downwardly for a portion of its length and forming a shoulder, a disk of soft resilient material fitting within said inner case in proximity to the bottom thereof having orifices therethrough communicating with the orifice in the lower closed end of said case; a gland threaded on the interior wall thereof corresponding to the threaded periphery of the outer case and fitting thereon having the inner wall thereof extending inwardly beyond said threaded portion and flush with the inner wall of said case and a flattened portion in said inwardly-extending portion, a washer inserted in said gland beneath the inwardly-extending portion thereof having a flattened portion corresponding with the flattened portion of the said gland, a suitable packing inserted between said washer and the inwardly-extending portion of said gland, a cap threaded on the interior wall thereof corresponding to the threaded portion of the inner case and fitting thereon and closing said case, a resilient washer inserted in said cap, an eye fixedly secured in said cap, a suitable cord or chain secured in said eye, and a suitable fastening device secured to said cord or chain for securing the cord to the clothing, as and for the purpose specified.

Signed at the city of Toronto, in the county of York, Province of Ontario, in the Dominion of Canada, this 20th day of April, 1906.

MATTHEW DONALD MCKICHAN.

Witnesses:

H. DENNISON

W. C. MUIR.