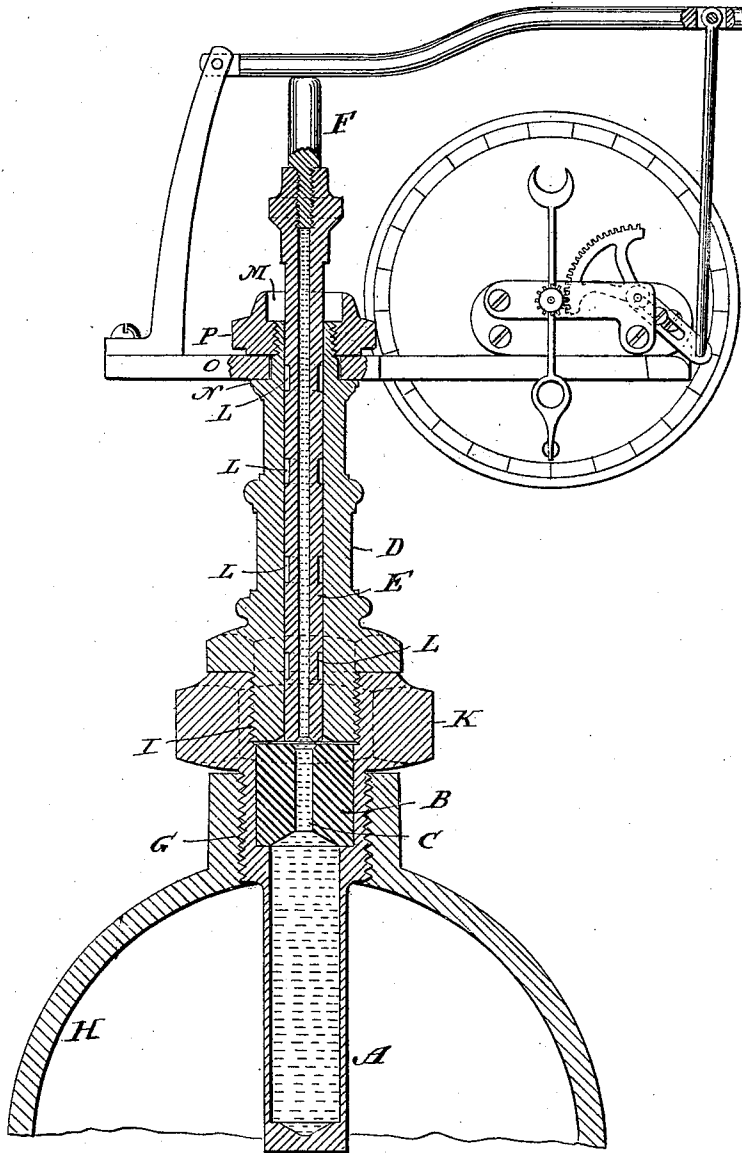


(No Model.)

E. A. LINDER.
THERMOMETER.

No. 517,388.

Patented Mar. 27, 1894.



WITNESSES:

E. Wolff
Chas. E. Doeringer

INVENTOR:

Emil Algot Linder

BY

Hauff & Hauff

ATTORNEYS.

UNITED STATES PATENT OFFICE.

EMIL ALGOT LINDER, OF BROOKLYN, NEW YORK.

THERMOMETER.

SPECIFICATION forming part of Letters Patent No. 517,388, dated March 27, 1894.

Application filed October 5, 1893. Serial No. 487,277. (No model.)

To all whom it may concern:

Be it known that I, EMIL ALGOT LINDER, a subject of the King of Sweden and Norway, residing at Brooklyn, in the county of Kings and State of New York, have invented new and useful Improvements in Thermometers, of which the following is a specification.

This invention relates to an improvement in thermometers and the invention consists in the novel features pointed out in the following specification and claims and illustrated in the annexed drawings which shows a sectional elevation of the thermometer.

In the drawings the latter A indicates the bulb of the thermometer. This bulb is provided with a separately formed plug B fitted into the upper part of the bulb and having a passage C forming an outlet or neck for the chamber or interior of the bulb. The passage C is of smaller bore than the chamber of the bulb and by having the plug B and bulb A as separate pieces the boring or chambering of each of said parts A and B can be readily accomplished. The bulb A is provided with a stem D into which is fitted a hollow plunger E. Suitable packing applied as well known can be used to snugly fit the plunger into the stem. The bulb A neck C and the hollow of the plunger E are filled with the mercury or expansible material employed in the thermometer. A stopper or plug F screwed or secured to the plunger can be made to close the passage in the latter as shown. When the filling in the thermometer becomes affected by variations in temperature so as to vary in bulk the plunger E will move in the stem D and the movements of the plunger can be made to actuate an index in any well known suitable way. The bulb A is shown provided with a screw thread G by which the bulb can be secured at any suitable locality such as a steam pipe or receptacle H. Said bulb is also tapped for the engagement of the screw thread I of stem D. By forming part of the bulb in form of a nut K a wrench or tool can be conveniently employed for attaching or removing the bulb.

The plunger can be suitably lubricated as with glycerine or like material if desired so

as to slide easily in the stem, the plunger being provided with chambers or recesses L for the reception of the lubricant, the stem being hollowed or cup shaped as at M to receive a supply of the lubricant.

The stem D has a shoulder N onto which can be suitably set the base or arm O carrying the index apparatus, said arm being held in place by a nut P screwed onto the stem. This nut P is shown as formed with the cup or hollow M to receive the lubricant.

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

1. The combination with a bulb having a contracted outlet or neck and provided with a stem, of an expansible and contractible medium, a plunger slidable lengthwise within the stem and moved outward by the expansion of the said medium, and an index arranged in operative connection with the outer end of said stem and actuated by the lengthwise movements thereof, substantially as described.

2. The combination with a bulb having a contracted outlet or neck and provided with a stem, of a hollow plunger fitted into the stem, and an expansible filling placed into the bulb and neck and into the hollow of the stem, substantially as described.

3. The combination with a bulb provided with a separately formed plug having a passage or neck of smaller bore than the chamber of the bulb, of a stem for the bulb, and a plunger fitted into the stem, substantially as described.

4. The combination with a bulb provided with a stem, of a hollow plunger fitted into the stem, and an index actuated by the plunger, said plunger having recesses as L for the reception of lubricant, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

EMIL ALGOT LINDER.

Witnesses:

WM. C. HAUFF,

E. F. KASTENHUBER.