

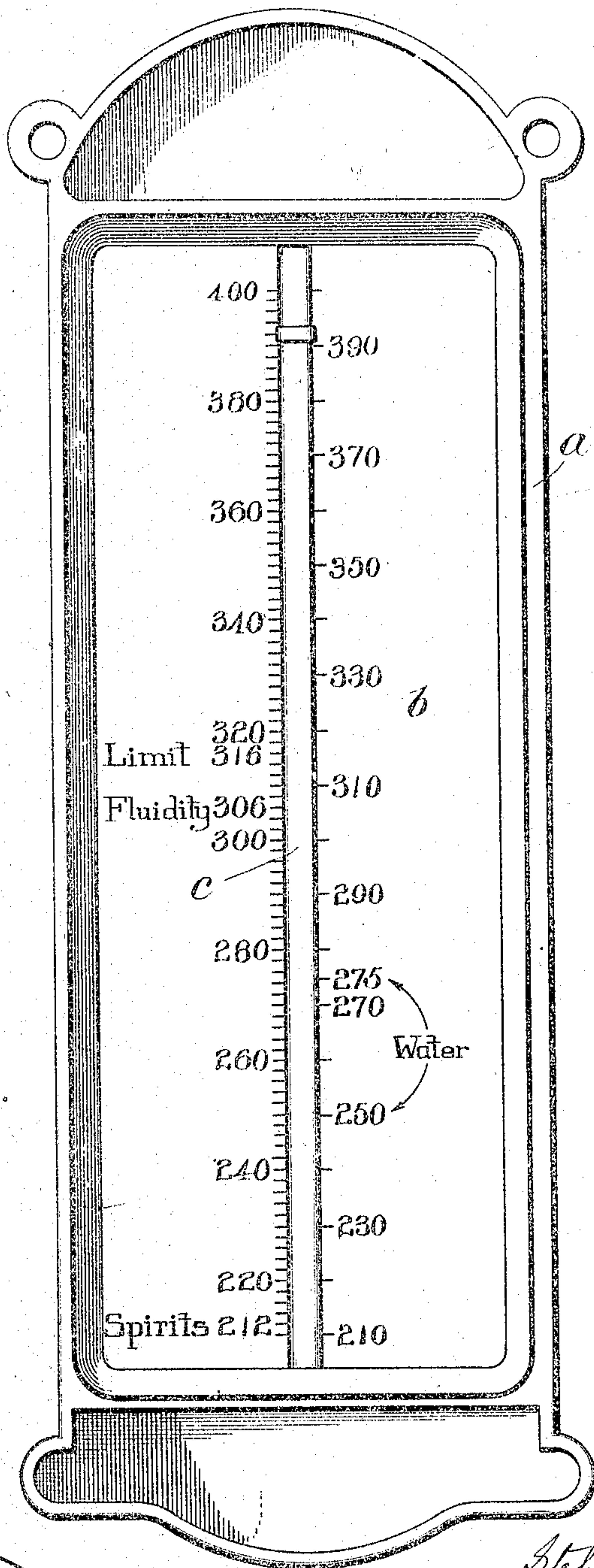
S. NEAL.
THERMOMETER.
APPLICATION FILED JAN. 22, 1908.

900,575.

Patented Oct. 6, 1908.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses
W. Map. Dwall.
a. Neale Jr.

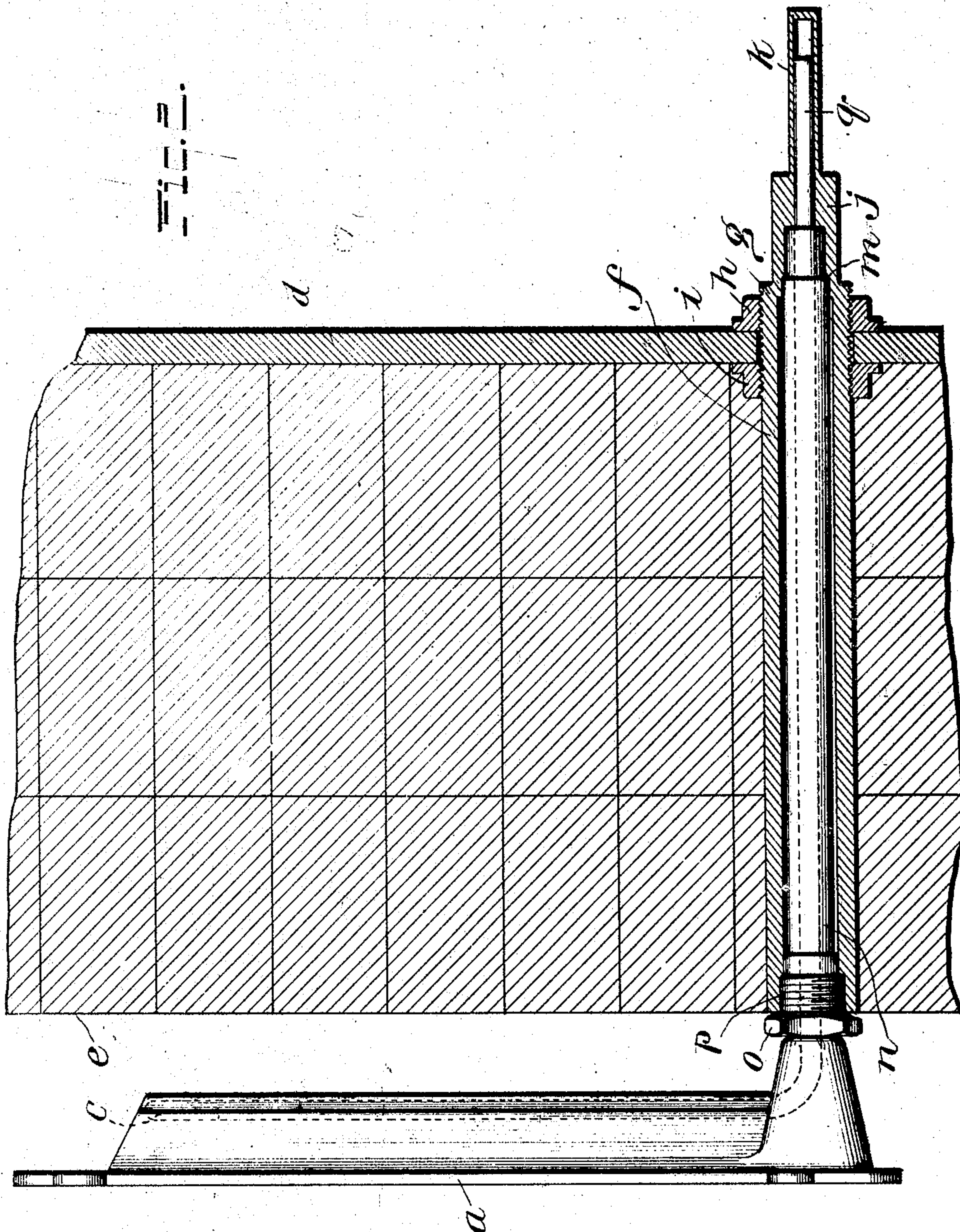
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Witnesses
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UNITED STATES PATENT OFFICE.

STEPHENS NEAL, OF CORDELE, GEORGIA, ASSIGNOR TO THE NEAL NAVAL STORES COMPANY
OF CORDELE, GEORGIA, A CORPORATION OF GEORGIA.

THERMOMETER.

No. 900,575.

Specification of Letters Patent.

Patented Oct. 6 1908.

Application filed January 22, 1908. Serial No. 412,212.

To all whom it may concern:

Be it known that I, STEPHENS NEAL, a citizen of the United States, residing at Cordele, in the county of Crisp and State of Georgia, have invented certain new and useful Improvements in Thermometers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in thermometers, and the object of my invention is to provide an efficient thermometer primarily designed for use with a turpentine still.

With this object in view, my invention consists in the construction and combinations of parts as hereinafter described and claimed.

In the accompanying drawings—Figure 1 is a view of the face plate of a thermometer, embodying my invention, and Fig. 2 is a cross section of a part of a still showing my invention applied thereto.

In the practical use of thermometers with turpentine stills it is important that the bulb of the thermometer should be within the material which is undergoing distillation; that it should be where it can readily be observed by the operator, while he is firing the still, and one that may be readily removed and inserted into the still. All these results are obtained by my construction.

a represents the face plate of a thermometer provided with an index *b*, and *c* represents the thermometer tube. The index is graduated on the Fahrenheit scale and marked off in divisions of 10°, subdivisions, of course, being provided. In addition to this the face plate bears the legend "Spirits 212" indicating the point at which the lighter part of the turpentine begins to distil; the legend "Water", with arrows running from this legend to the figures 250 and 275, indicating the limits between which water is to be added to the still; "Fluidity 306", indicating the point at which oleoresinous material becomes perfectly fluid, and "Limit 316" indicating the point where the material begins to char and gas begins to be given off, above which point the temperature should not be allowed to rise.

Referring to Fig. 2, *d* represents a part of the still wall, and *e* the masonry surround-

ing the same. This wall is perforated for the passage therethrough of a protecting tube *f*, screw threaded, as shown at *g*, and held in place by the nuts *h* and *i*. Asbestos washers may, if preferred, be used with either or both of said nuts, though this is not strictly necessary. The nut *i* may be made integral with the tube *f*, if preferred. This tube terminates in a perforated boss *j* and a perforated nipple *k*, and the tube is preferably made of copper so that it will not be attacked by the material under treatment. The nipple *k* is made comparatively thin, so that the heat will be readily conducted through it, and the boss *j* is shouldered, as shown at *m*.

The tube *c* of the thermometer is bent at right angles and the larger part of its horizontal portion is protected by a tube *n*, the inner part of which is shouldered to contact with the shoulder of the boss *j*. This tube is perforated throughout and the exposed bulb of the thermometer is adapted to slide within the nipple *k*. A sleeve *o*, screw threaded at *p*, is adapted to screw into the outer end of the tube *f*.

Thus it will be seen that I have provided a simple thermometer which can be used in any desired position, and which is thoroughly protected and which can be readily removed, if desired. This thermometer also shows on its face legends which serve to guide the workmen in operating the still.

Having thus described my invention, I claim—

1. The combination of a still, a tube passing through the wall of said still and having its outer end interiorly screw-threaded, and having its inner end extending within said still and provided with a shoulder, and terminating in a hollow, thin walled nipple, a thermometer, part of which passes inside of said tube, with its bulb in contact with said nipple, a protecting tube for said thermometer, having a reduced portion adapted to fit into the hollow shoulder of said first named tube, and a sleeve for removably securing said protecting tube within said first named tube, substantially as described.

2. The combination of a still, a tube permanently secured in the wall of said still, said tube having its outer end interiorly screw-threaded, and provided on the part inside the still with a hollow projection having an interior shoulder and terminating in a

thin walled nipple, a thermometer bent at
right angles and having its horizontal part
adapted to pass inside of said tube with the
bulb of the thermometer in contact with said
5 nipple, a face plate for said thermometer, a
protecting tube fitting within said first
named tube and having a reduced portion
adapted to fit within the hollow shoulder of
the first named tube, and a sleeve adapted to
10 screw into said first named tube, holding the

thermometer and protecting tube removably
in position within said first named tube, sub-
stantially as described.

In testimony whereof, I affix my signa-
ture, in presence of two witnesses.

STEPHENS NEAL.

Witnesses:

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T. A. BAKER.