

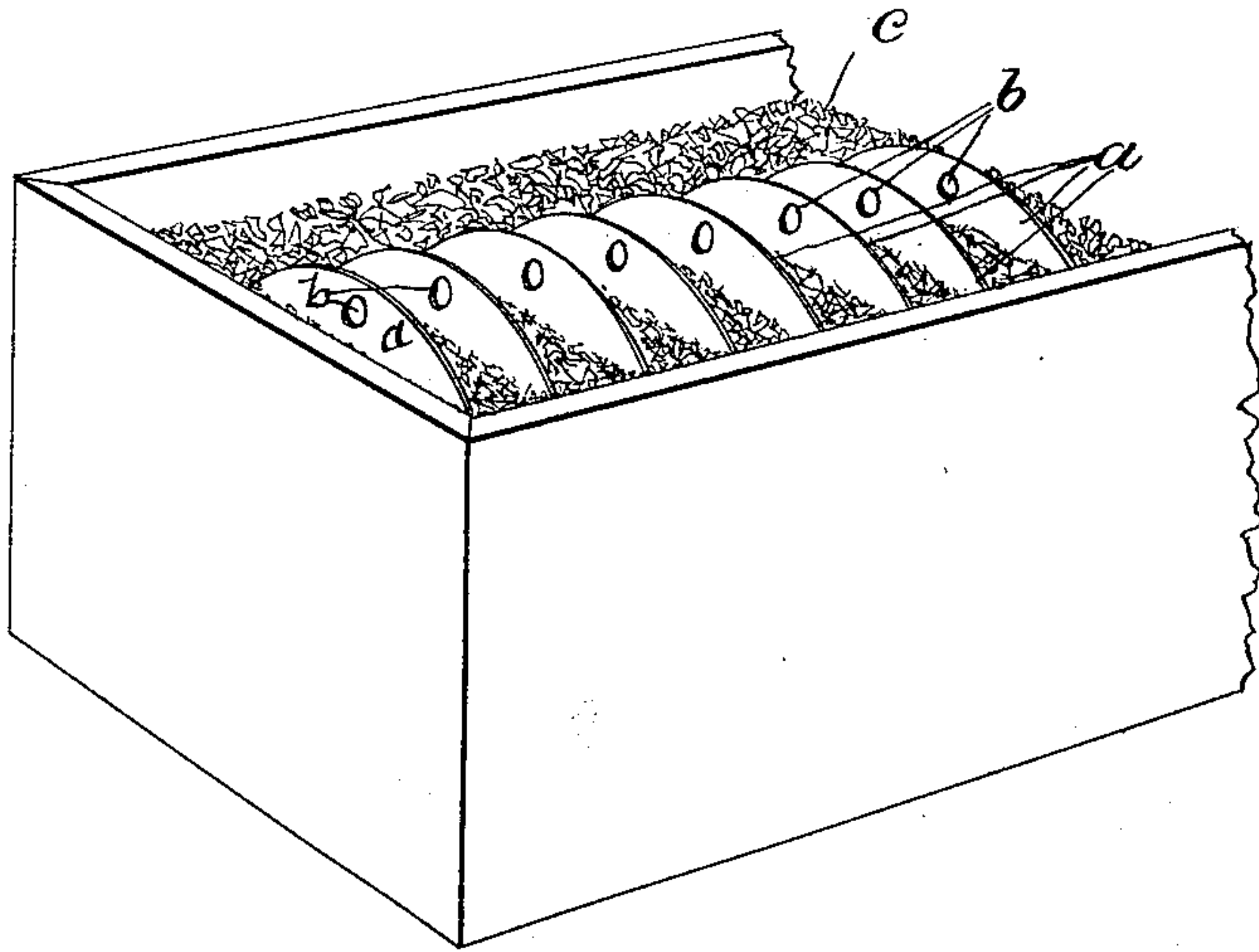
(No Model.)

M. MARTIN.

MANUFACTURING THERMOSTATS.

No. 329,469.

Patented Nov. 3. 1885.



Witnesses.

John F. Nelson.

John F. C. Prinkert

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UNITED STATES PATENT OFFICE.

MORRIS MARTIN, OF MALDEN, MASSACHUSETTS.

MANUFACTURING THERMOSTATS.

SPECIFICATION forming part of Letters Patent No. 329,469, dated November 3, 1885.

Application filed February 24, 1885. Serial No. 157,042. (No model.)

To all whom it may concern:

Be it known that I, MORRIS MARTIN, of Malden, county of Middlesex, State of Massachusetts, have invented an Improvement in
5 Methods of Manufacturing Thermostatic Instruments, of which the following description, in connection with the accompanying drawing, is a specification, like letters on the drawing representing like parts.

10 My invention relates to a method of manufacturing thermostatic instruments operated by a rise in temperature to produce a signal or otherwise to make known such rise in temperature, the instrument operating by the
15 vaporization of a volatile liquid in a metallic reservoir having a flexible side, which is expanded by the liquid in vaporizing. The reservoir is preferably made of two metallic plates or disks, united around their edges by solder,
20 thus forming a chamber to contain the volatile liquid, and it is necessary to provide means for introducing the liquid to the said chamber and subsequently sealing the latter tightly. As the liquid employed usually volatilizes at
25 a very low temperature, it is difficult, if not impossible, to unite the portions of the reservoir by solder after the liquid has been placed between them, owing to the heat required for soldering, and instruments of this kind have
30 been devised in which the reservoir is provided with a screw-hole, through which the liquid is inserted, and which is afterward sealed by applying a screw in the said hole. This construction is expensive, and does not always
35 afford an absolutely tight reservoir, as is essential for the proper operation of the instrument.

In order to introduce the volatile liquid into the reservoir in accordance with the present
40 invention, I provide the reservoir with a small hole near one edge, and introduce the liquid by immersing the said reservoir in the liquid and pressing the sides of the reservoir together in order to expel the air, so that when the
45 pressure is relieved the reservoir, by its natural elasticity, will expand and draw in a sufficient portion of the volatile liquid. The reservoirs thus provided with liquid are then

placed in a cool body, preferably cold water or a freezing-mixture, which surrounds them
50 nearly up to the level of the hole through which the liquid was introduced, the portion of the reservoir containing the said hole projecting above the cool body. The hole may then be closed by soldering, in the usual manner, the
55 cool body surrounding the main portion of the reservoir preventing the contained liquid from being volatilized by the heat applied to the upper edge of the reservoir for the purpose of soldering.

60 The drawing shows the reservoirs surrounded by cooling material, to enable the same to be soldered in accordance with this invention.

The reservoirs *a*, consisting of a flat chamber having flexible sides, are each provided
55 with an opening, *b*, near its edge, through which the volatile liquid is introduced, after which the said reservoir is placed edgewise in a cool body of freezing-mixture, *c*, surrounding the same nearly to the level of the hole *b*,
70 which is placed uppermost. The liquid, which need not wholly fill the reservoir, is thus retained at a temperature below the volatilizing-point in the lower part of the reservoir, while the hole *b* in the upper part of the said reservoir is soldered by applying a drop of solder in
75 any usual manner, the heat of the said solder being unable to effect the volatilization of the liquid, owing to the cool material surrounding the latter.

I claim—

The herein-described improvement in the art or method of manufacturing thermostatic instruments, which consists in introducing a
85 liquid into a metallic reservoir through a hole in the said reservoir, surrounding the reservoir with cooling material, and sealing the said hole while the reservoir is in the cooling material, substantially as described.

In testimony whereof I have signed my name
90 to this specification in the presence of two subscribing witnesses.

MORRIS MARTIN.

Witnesses:

G. W. GREGORY,
JOS. P. LIVERMORE.