

(No Model.)

H. J. HAIGHT.
THERMOSTAT COIL.

No. 268,885.

Patented Dec. 12, 1882.

Fig. 1.

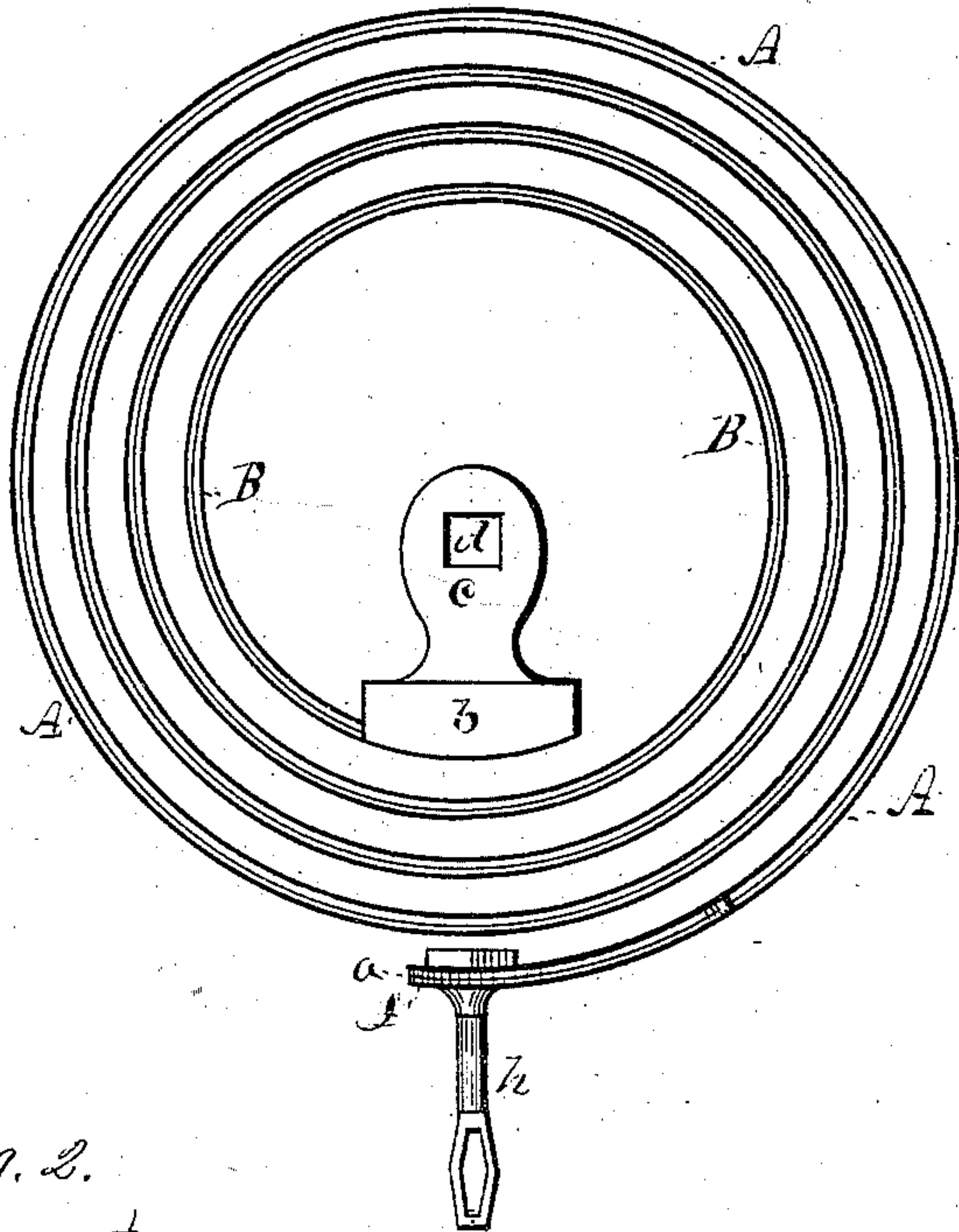


Fig. 2.

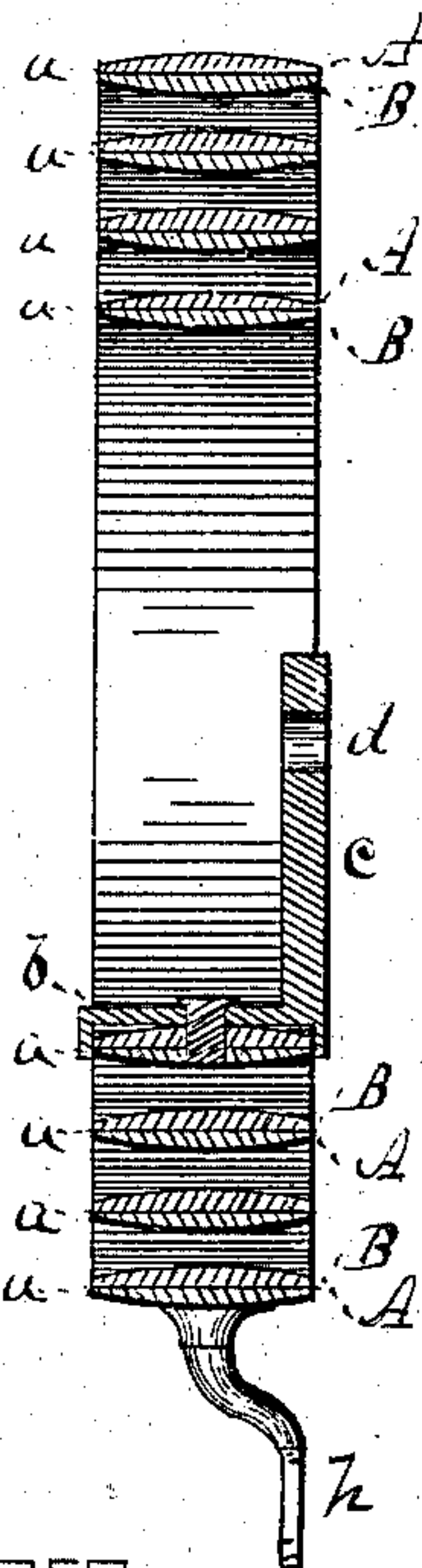
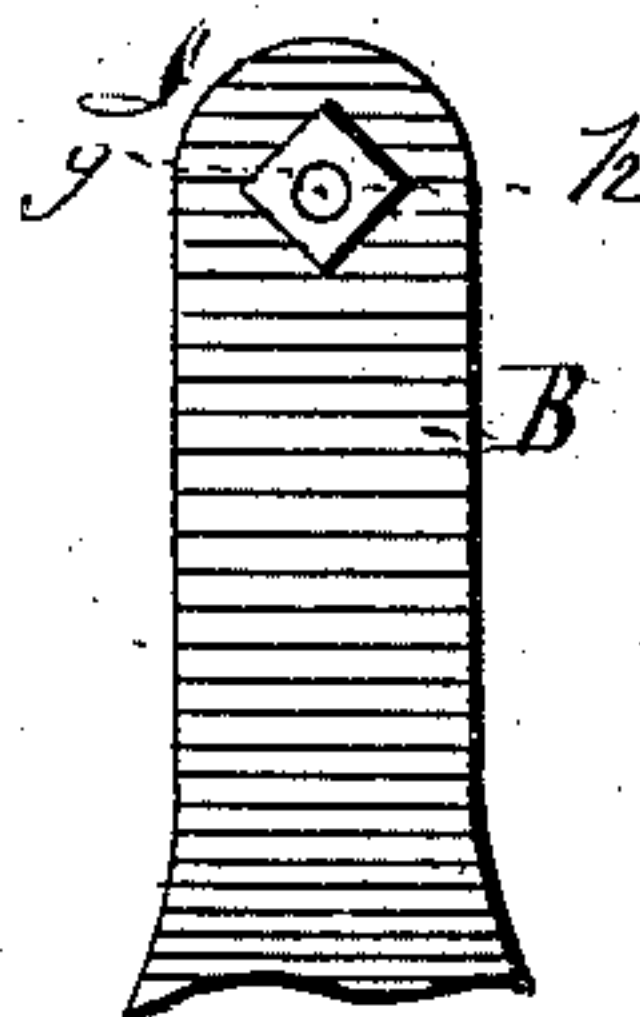


Fig. 3.



WITNESSES:

W. A. Jones.
J. B. Lawry.

INVENTOR.

Henry J. Haight,
By his atty.,
J. S. Brown.

UNITED STATES PATENT OFFICE.

HENRY J. HAIGHT, OF NEW YORK, N. Y.

THERMOSTAT-COIL.

SPECIFICATION forming part of Letters Patent No. 268,885, dated December 12, 1882.

Application filed March 20, 1882. (No model.)

To all whom it may concern:

Be it known that I, HENRY JANSEN HAIGHT, of the city, county, and State of New York, have invented an Improved Thermostat-Coil; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification—

Figure 1 being a side view of my improved thermostat-coil complete; Fig. 2, a cross-section of the same; Fig. 3, a view of the outer or movable end of the coil.

Like letters designate corresponding parts in all of the figures.

This invention consists in an improvement in the construction of thermostat-coils, such as that described in Letters Patent No. 251,359, granted to me on the 27th day of December, 1881. As described in the said Letters Patent, the coil, which is the controlling element in the thermostat, is made in the form of a flat ribbon coiled with several—say four or five—complete turns or circles, as shown, and of a single metal, the movements of the thermostat being produced by the simple expansion and contraction of the metal under the variations of heat. I find, however, that a more active, effective, and sensitive coil can be made by forming the coil of a ribbon or plate composed of two metals, united lengthwise of the coil, possessing different rates of expansibility under heat, whereby the combined effects of simple expansion in length and the coiling action produced by employing a metal of greater expansibility on the convex curve than that on the inner curve are obtained.

In the drawings the outer metal is shown at A and the inner metal is shown at B, the line of junction being shown at *a*. The two metals are soldered or brazed together—not merely riveted—so that the full effect of the different expansions is obtained, there being no possible slipping of one metal on the other. I employ for the two metals such as differ at least considerably in expansibility, the greater the better, other things being equal, and such as are readily united by soldering. I prefer zinc for the outer metal and copper or its alloy, brass, (being nearly as good as to its expansibility, and better for its elasticity,) as the inner metal; but other combinations may be made with success, especially German silver or nickel, in connection with brass or copper.

An important feature of the present invention is the form (in cross-section) given to the ribbon or plate of metal forming the coil, as shown in Fig. 2, being convex transversely on both sides. This form exposes the surfaces of the ribbon, when formed in the coil, more readily to the circulation of heated air, and radiates the heat more readily in cooling, so that it makes the coil more sensitive and rapid in action. It also enlarges the heat absorbing and radiating surface of the coil. It also strengthens the coil and gives it more rigidity and firmness with equal sensitiveness. A clip, *b*, is secured to the inner end of the coil, and a radial arm, *c*, extending from the clip is made to embrace or otherwise be firmly secured to the fixed shaft or bolt at *d* of the thermostat. The outer movable end, *f*, of the coil has a hole or mortise, *g*, Fig. 3, to receive the end of the projecting arm or rod *h*, which is also attached to the shaft or arm through which the movements of the coil are communicated to the valve apparatus of the thermostat.

I am aware that metals of different rates of expansibility have been united by riveting to form a straight thermostat-bar, or curved under the influence of the variations of heat; but such a combination and form cannot produce the combined effects of the different metals and the coil form as above set forth.

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

1. A compound thermostat-coil made convex in cross-section, substantially as and for the purpose herein specified.

2. A thermostat-coil having several turns and composed of two strips, A B, having outer surfaces convex in cross-section, and of different metals or alloys, soldered together, the outer-curve metal having a greater rate of expansibility than the inner-curve metal under increasing heat, the said coil having a radial arm, *c*, secured to its inner end for attaching it to a fixed stud or shaft, *d*, and an arm, *h*, secured to its outer end, adapted to be applied to the operative mechanism of a thermostat-valve, substantially as and for the purpose herein specified.

HENRY J. HAIGHT.

Witnesses:

URIAH WELCH,
H. PEAKE.