

(No Model.)

F. H. CORTHELL.

MUFFLE FOR TEMPERING HAIR SPRINGS.

No. 283,700.

Patented Aug. 21, 1883.

Fig. 1.

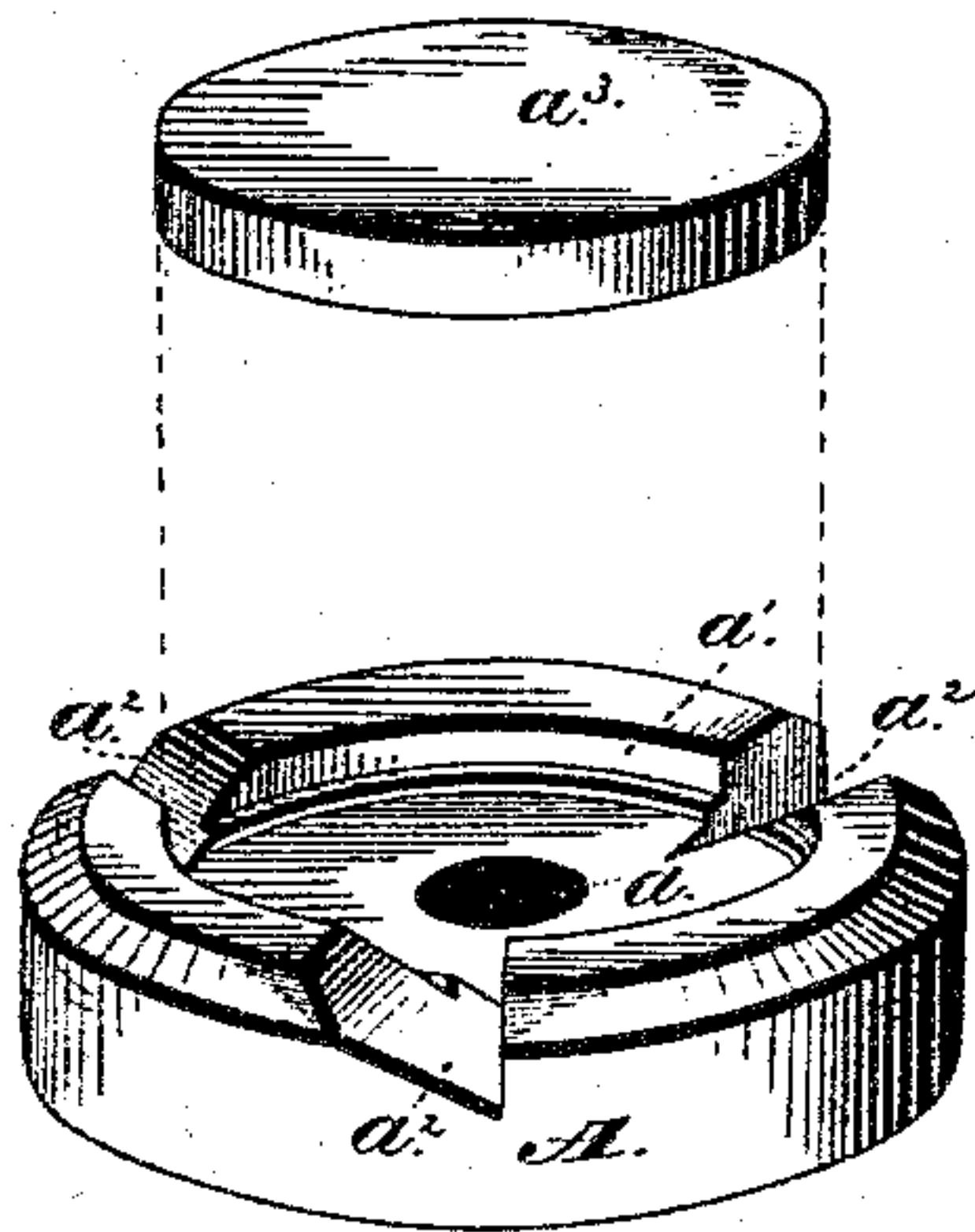


Fig. 4.

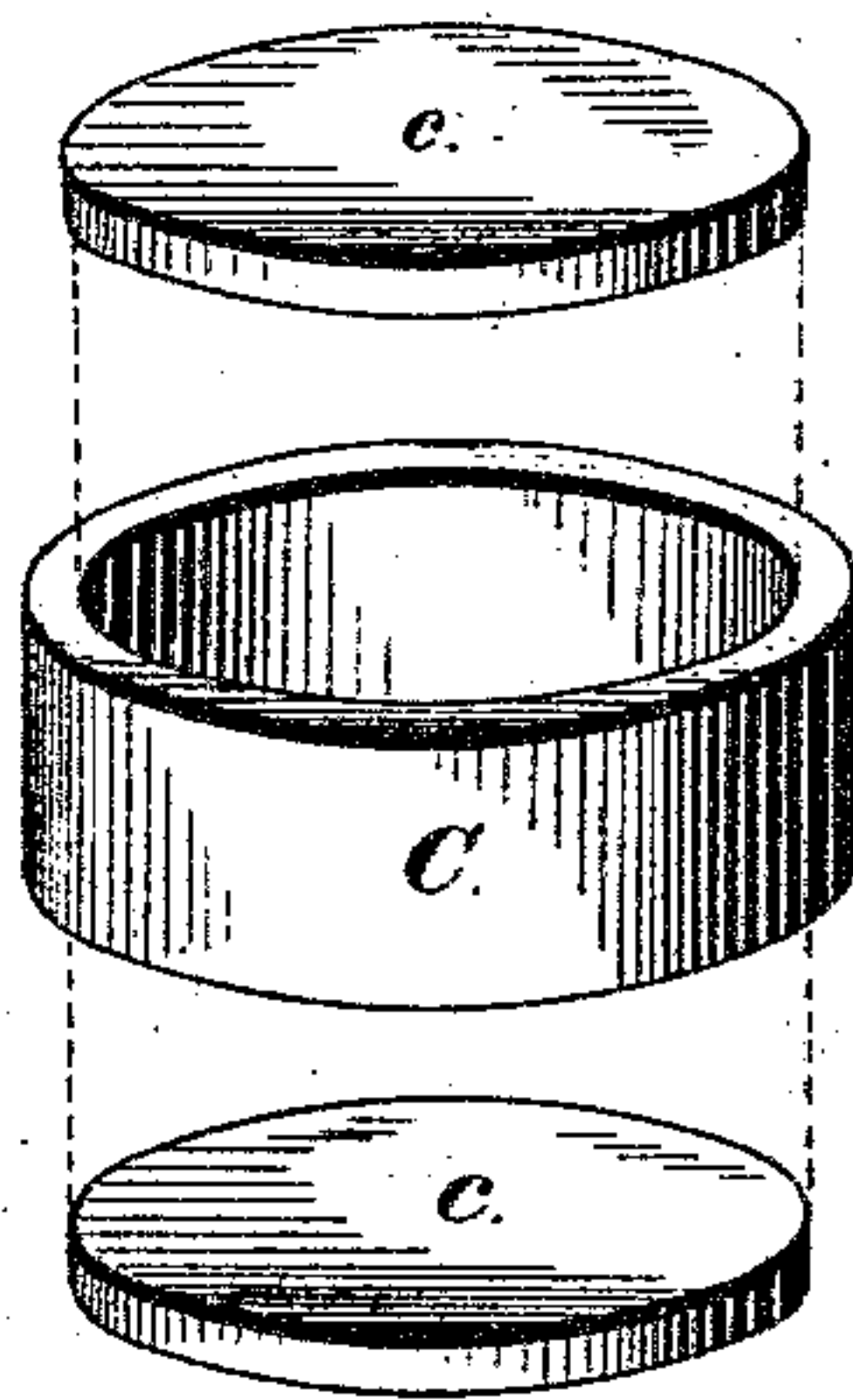


Fig. 2.

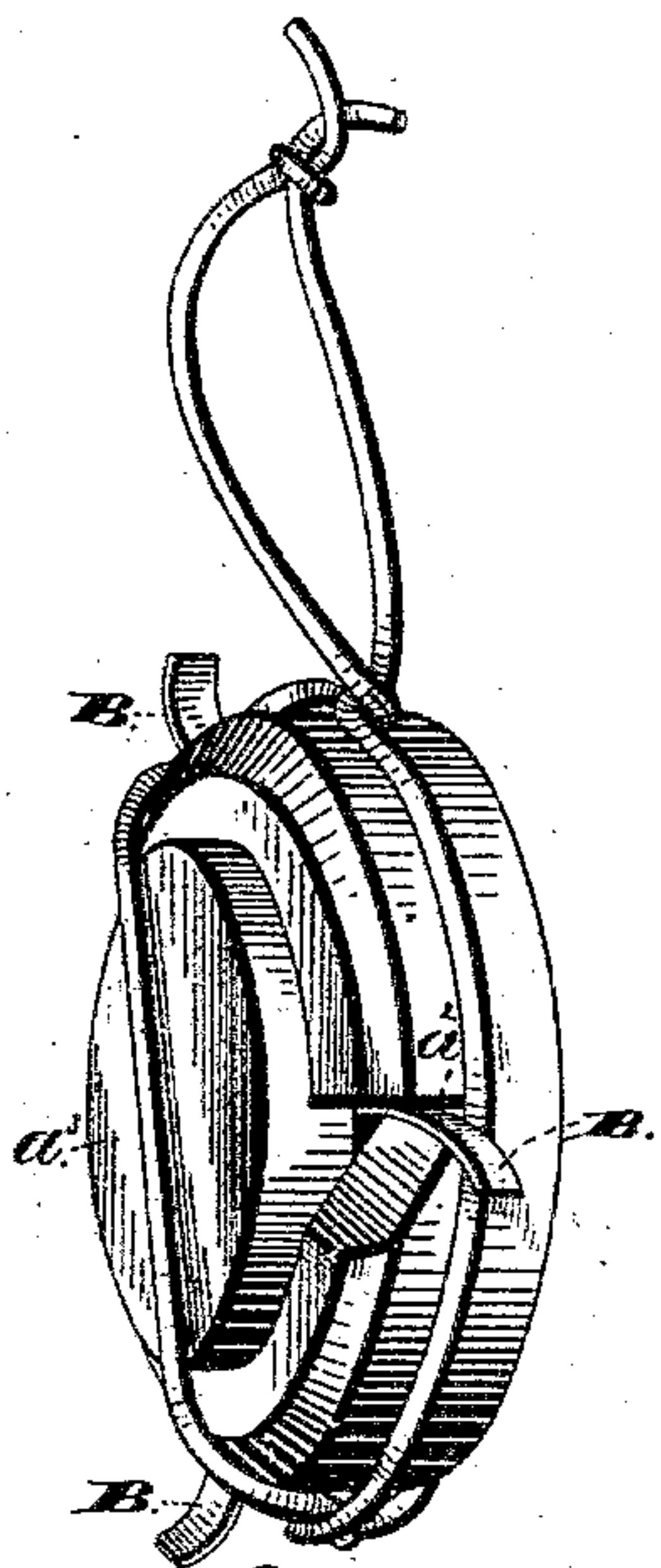


Fig. 5.

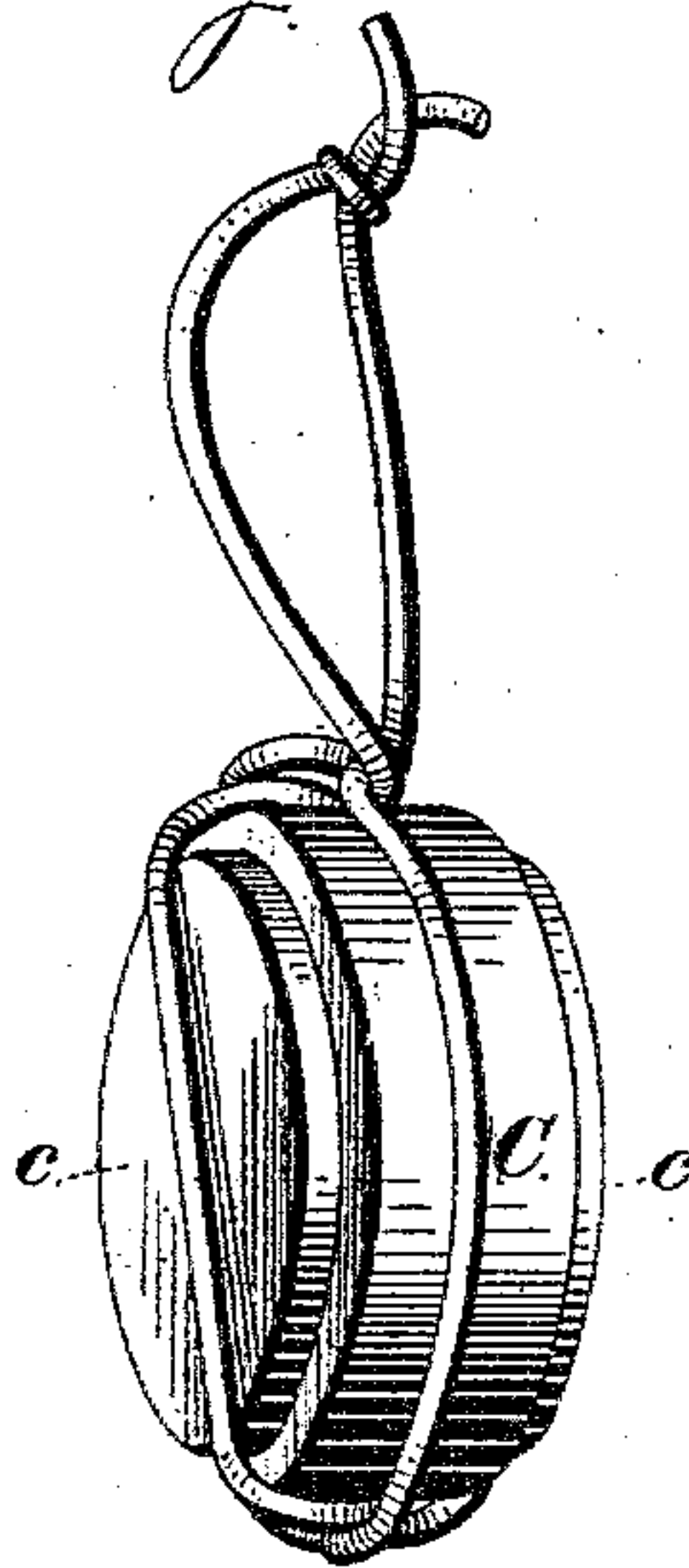


Fig. 3.

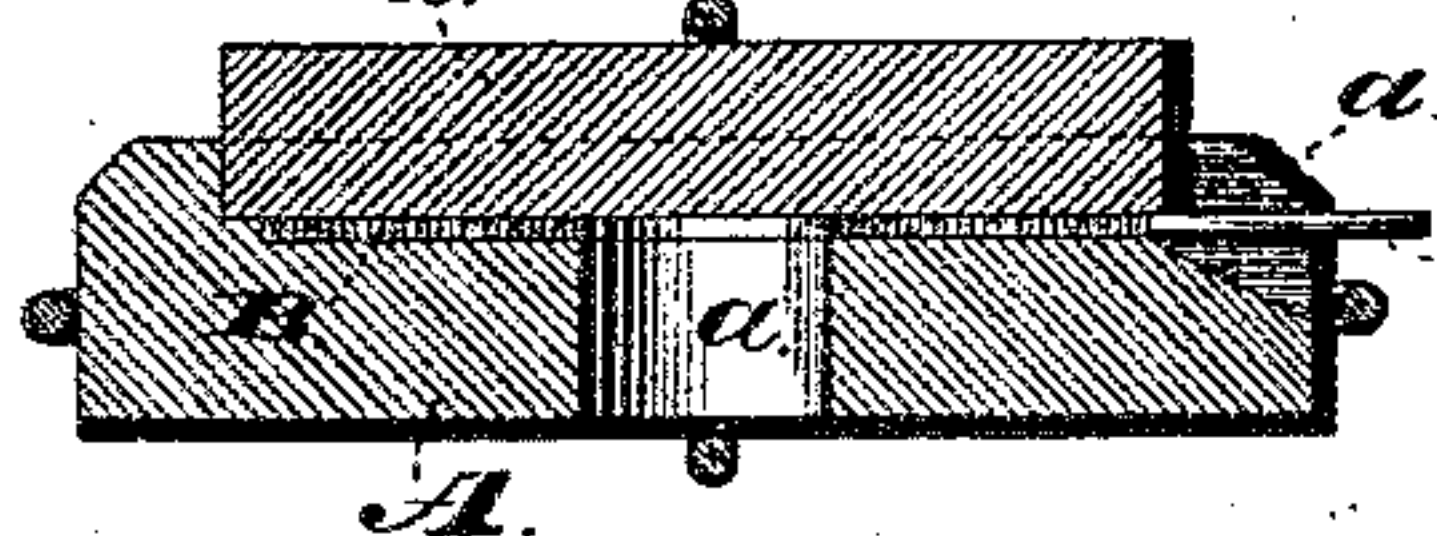
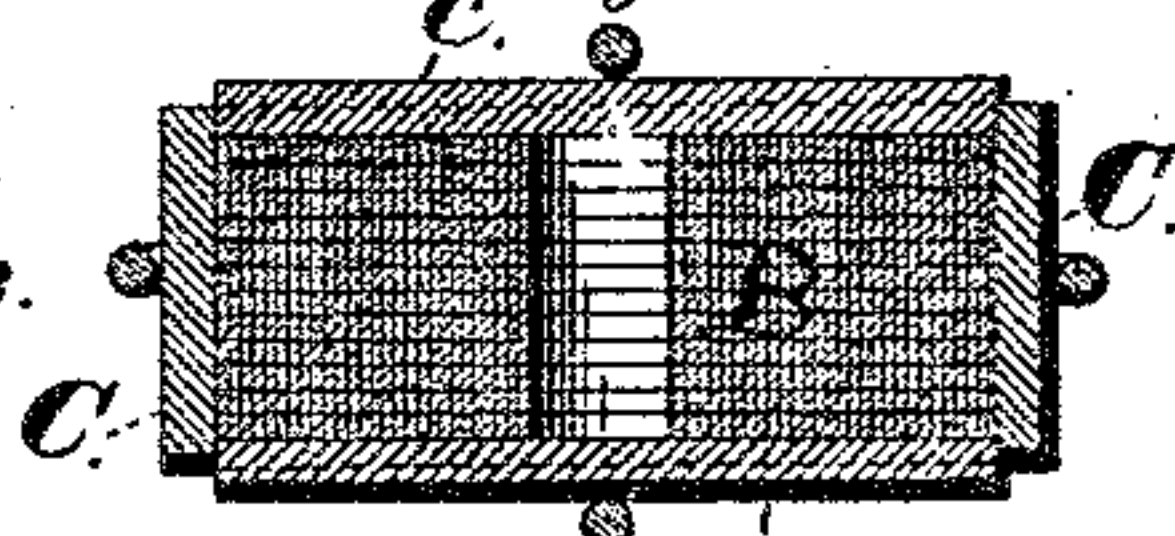


Fig. 6.



Witnesses:

Jas. E. Hutchinson.
Henry C. Hazard

Inventor.

F. H. CortHELL, by
Crimm & Russell, his Attys

UNITED STATES PATENT OFFICE.

FRED H. CORTHELL, OF ELGIN, ILLINOIS.

MUFFLE FOR TEMPERING HAIR-SPRINGS.

SPECIFICATION forming part of Letters Patent No. 283,700, dated August 21, 1883.

Application filed April 11, 1883. (No model.)

To all whom it may concern:

Be it known that I, FRED H. CORTHELL, of Elgin, in the county of Kane, and in the State of Illinois, have invented certain new and useful Improvements in Muffles for Tempering Hair-Springs; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1 is an enlarged perspective view of the box or muffle heretofore in use for tempering hair-springs, its parts being separated from each other. Fig. 2 is a like view of the same combined and ready for heating. Fig. 3 is a central section of said box upon an axial line. Fig. 4 is an enlarged perspective view of my box or muffle, the parts being separated from each other. Fig. 5 is a like view of the same combined and wired for heating; and Fig. 6 is a central axial section of the same.

Letters of like name and kind refer to like parts in each of the figures.

The design of my invention is to lessen the expense of tempering, to improve the quality, and to render more uniform the temper of hair-springs for watches; and to this end said invention consists, principally, as an improvement in muffles, in the combination of the open-ended drum, and the two heads fitting therein and adapted to be wired in place, substantially as and for the purpose hereinafter described.

It consists, further, as an improvement in muffles, in the combination of the open-ended drum, adapted to receive several layers of hair-springs, and the two heads fitting therein and adapted to be wired in place, substantially as and for the purpose hereinafter set forth.

In the tempering of hair-springs it has heretofore been customary to employ a box or muffle, A, formed of cast brass or copper, and having an axial opening, *a*, and provided within one face with a recess, *a'*, for the reception of springs, from which recess three notches or grooves, *a''*, extend radially outward from equidistant points. The box A being placed upon a suitable tool, three hair-springs, B, were coiled within the recess *a'*, with their ends projecting from the notches *a''*, after which a head, *a'''*, was placed over said springs within said recess and the parts wired together, as shown

in Fig. 2. The box A and its springs were then heated and cooled to properly temper the latter; but not only was the metal of the casing unevenly distributed, but in order that a box might be capable of use a second time it was necessary that it should contain such a quantity of metal as to render the regulation of the temperature of the springs a matter of uncertainty, and prevent such rapid and uniform cooling of the same as was required, in order that the best result might be secured. As, however, said box could only be made by hand and at a considerable expense, it has been deemed necessary economy that it should be used several times, although, in consequence of the warping, which resulted from the heating and cooling of a box, it was rarely perfect and fit for use a second time, and could not be relied upon for perfect work.

In place of the box A, I employ a drum, C, cut from a thin copper pipe, having the desired internal diameter, and two heads, *c*, which are adapted to fit within and close the ends of said drum. Three hair-springs, B, are now coiled together upon a suitable tool and pressed into said drum, and others similarly coiled are placed in position until about twelve layers—thirty-six springs—are stored within said drum, after which the heads *c* are placed within the ends of the latter, and the whole wired up, as before. The casing thus formed being thin and having practically a uniform thickness at all points, it is found that in heating and cooling the springs thus arranged there are none of the objections which heretofore existed, and perfect and uniform results are easily secured, while the operator, who is of necessity a skilled, high-priced workman, can accomplish more in one hour than it has heretofore been possible to do in twelve hours.

The drums cost but a fraction of the expense of the old style of muffle, and after having been once used are melted up with old brass, so that imperfect springs, from use of defective holders while being tempered, are unknown.

Having thus fully set forth the nature and merits of my invention, what I claim as new is—

1. As an improvement in muffles, the combination of the open-ended drum and the two heads fitting therein and adapted to be wired

in place, substantially as and for the purpose described.

2. As an improvement in muffles, the combination of the open-ended drum, adapted to
5 receive several layers of hair-springs, and the two heads fitting therein and adapted to be wired in place, substantially as and for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 4th day of 10 April, 1883.

FRED H. CORTHELL.

Witnesses:

GEO. HUNTER,
W. H. CLOUDMAN.