

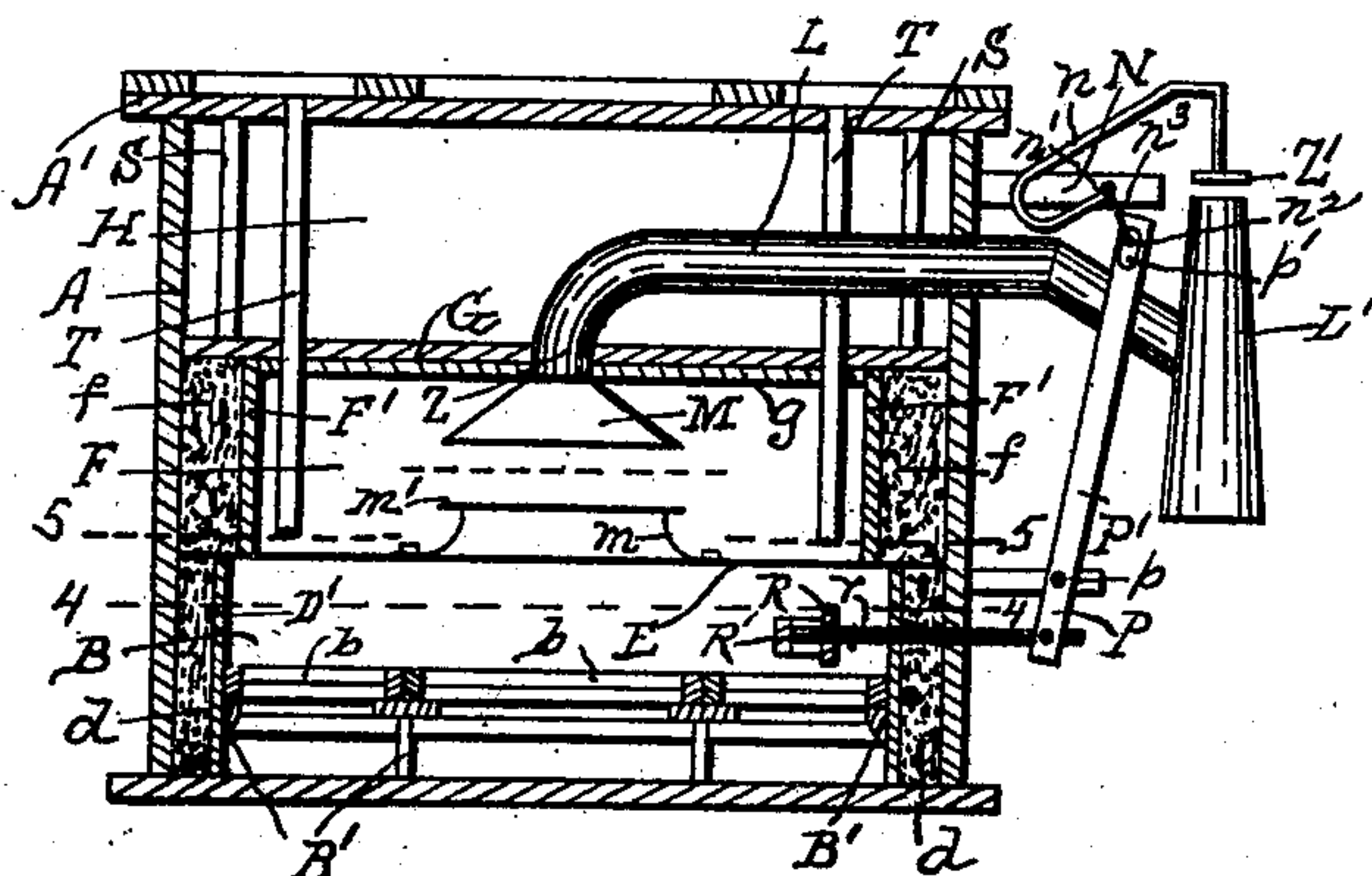
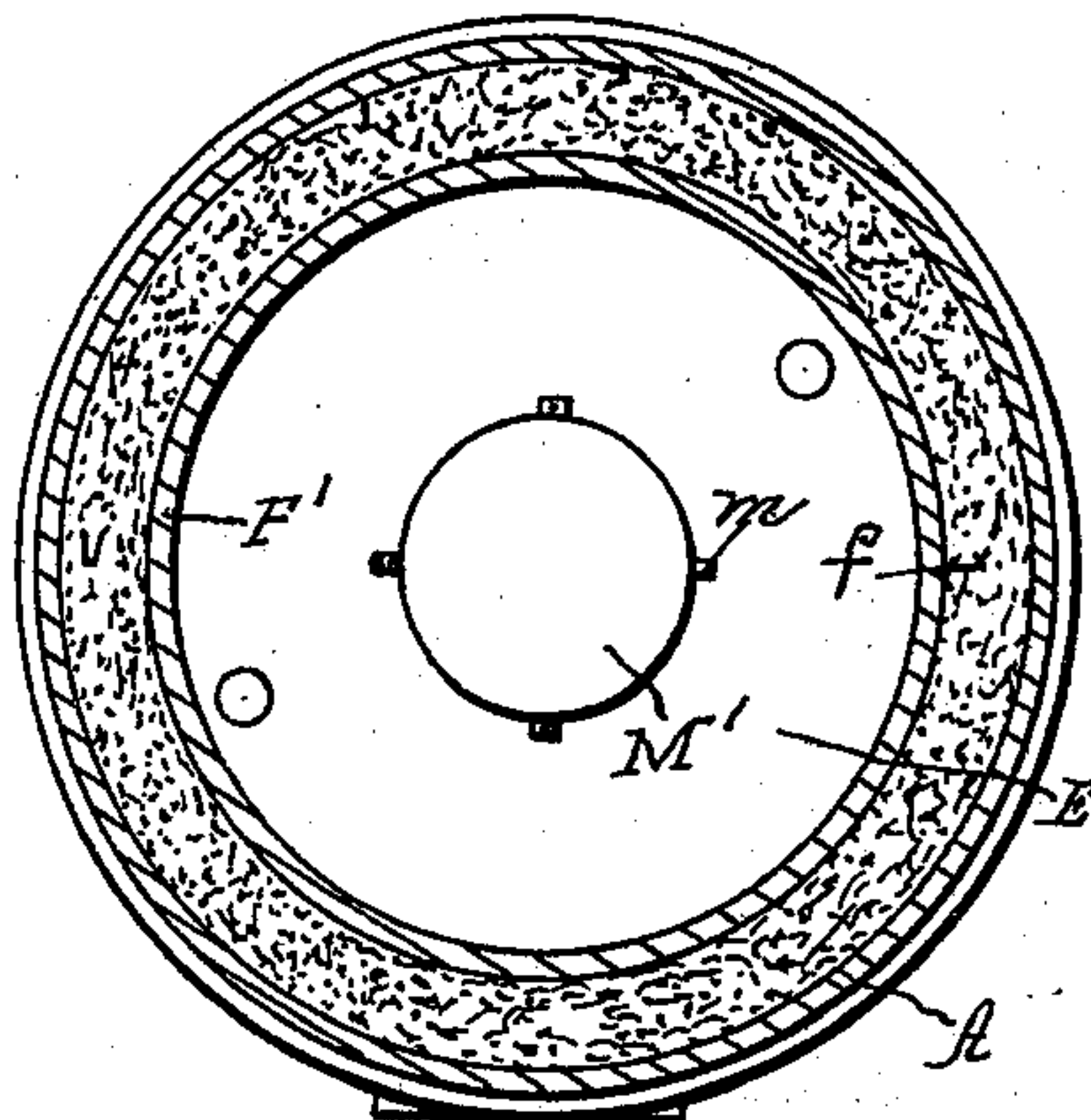
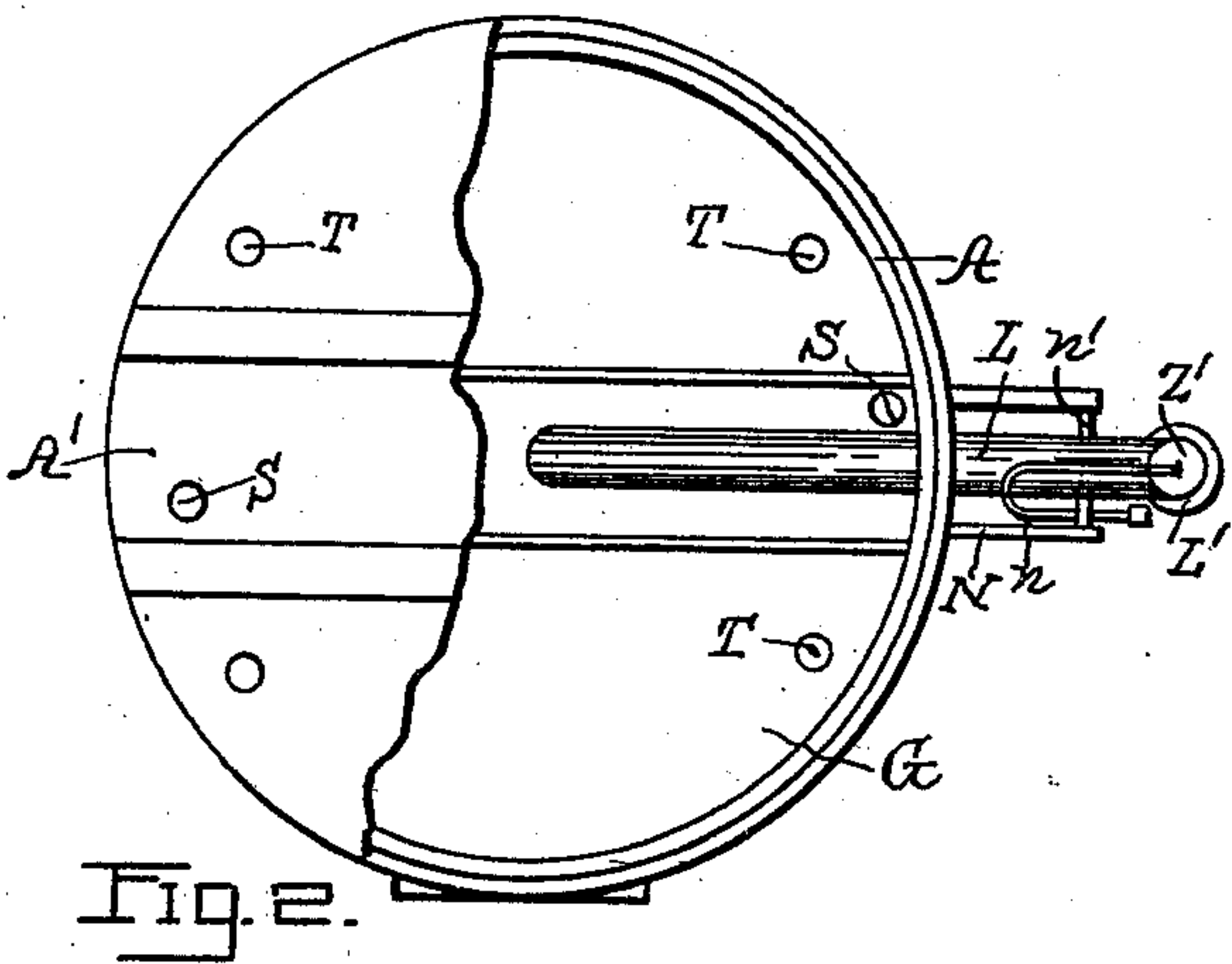
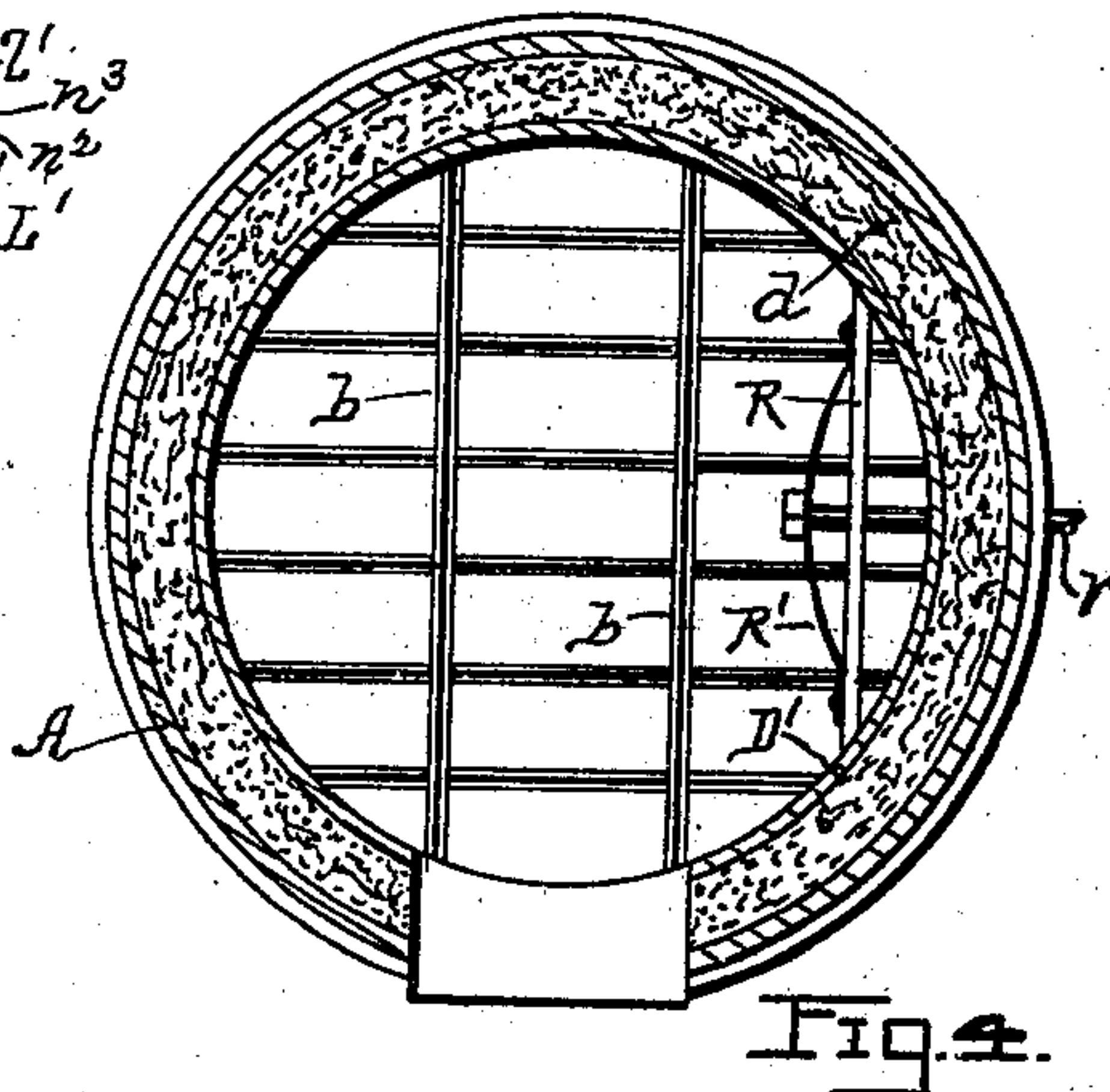
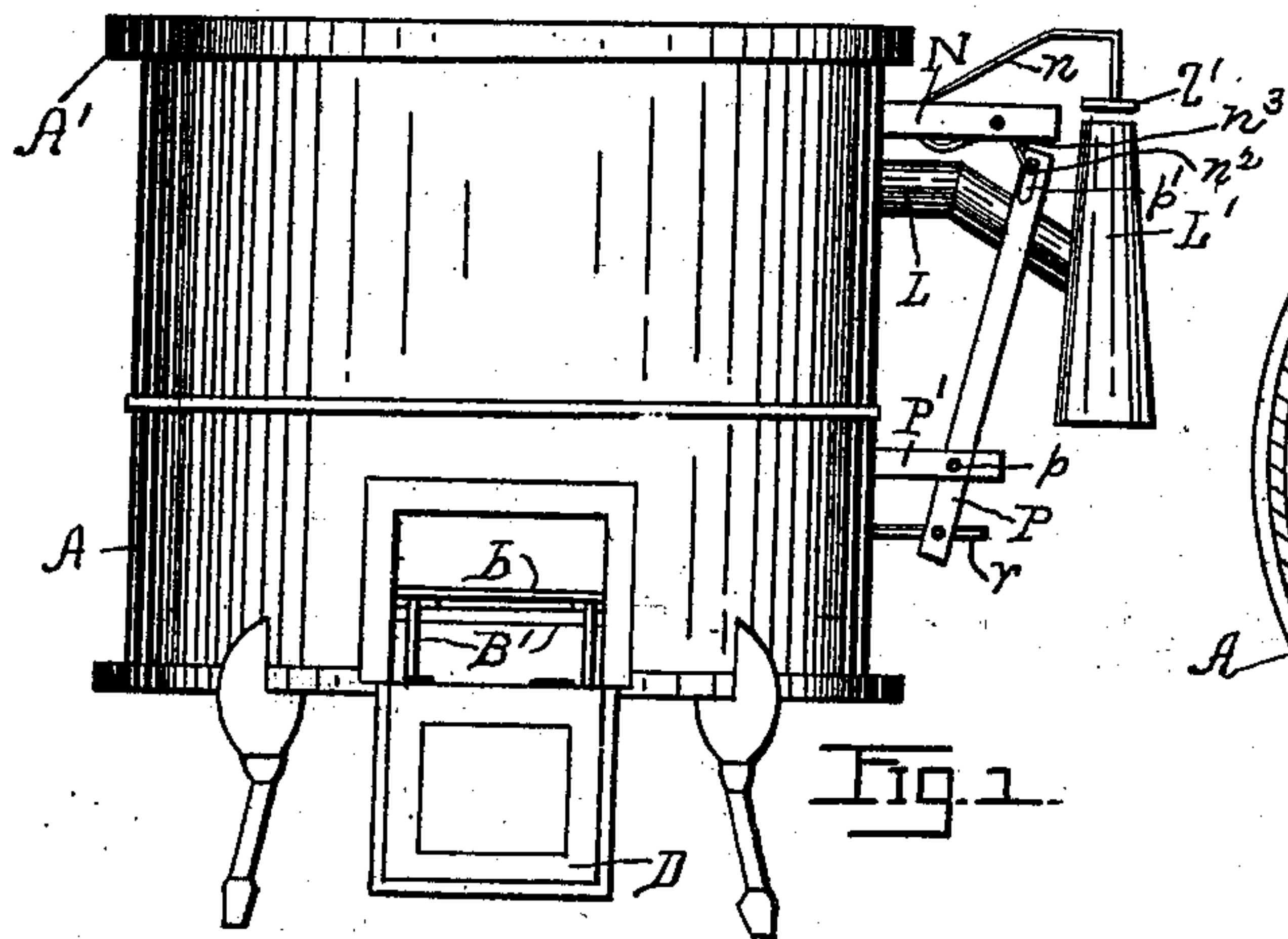
No. 670,490.

Patented Mar. 26, 1901.

D. C. COBLE.
INCUBATOR.

(Application filed May 4, 1898.)

(No Model.)



WITNESSES
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Fig. 3.

BY

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DAVID C. COBLE, OF ELIZABETHTOWN, PENNSYLVANIA.

INCUBATOR.

SPECIFICATION forming part of Letters Patent No. 670,490, dated March 26, 1901.

Application filed May 4, 1898. Serial No. 679,695. (No model.)

To all whom it may concern:

Be it known that I, DAVID C. COBLE, a citizen of the United States, residing at Elizabethtown, in the county of Lancaster and State of Pennsylvania, have invented a new and useful Improvement in Incubators, of which the following is a specification.

This invention relates to improvements in incubators; and the object of my invention is to heat all portions of the egg-chamber to the same degree and so that any rising and falling of the temperature therein may be uniform throughout the whole extent of said chamber.

The invention consists in the construction and combination of the various parts, as hereinafter fully explained and then pointed out in the claims.

In the accompanying drawings, which form a part of this specification, Figure 1 is a front elevation of an incubator embodying my improvements; and Fig. 2, a top plan view of the same, a portion of the lid being cut away. Fig. 3 is a vertical transverse section; Fig. 4, a horizontal section on broken line 4 4 of Fig. 3, and Fig. 5 a horizontal section on broken line 5 5 of Fig. 3.

Similar letters indicate like parts throughout the several views.

Referring to the details of the drawings, A indicates the outer wall of the case of the incubator, which is circular, as are all the chambers therein, and A' is the top or lid.

B indicates the egg-chamber, having supports B' therein, on which rest the egg-trays b, and D is the door of the egg-chamber, adapted to be opened by turning the swinging edge downward, as seen in Fig. 1. The egg-chamber is surrounded by a vertical wall D', of asbestos, placed a suitable distance inside of wall A, the space between which two walls is filled with a packing of mineral wool d. The egg-chamber is separated from the hot-air chamber above it (to be described) by a partition E, of zinc, which partition extends over packing d and to outer wall A. Partition E forms the bottom of hot-air chamber F, also surrounded by a vertical wall F', of asbestos, located a greater distance inside of outer wall A than is the asbestos wall D' of the egg-chamber to more effectually concen-

trate the heat on partition E, and the space between wall F' and outer wall A is also filled with mineral wool f. Hot-air chamber F is covered by a partition G, which extends over the space between asbestos wall F' and outer wall A, the part of the under side of partition G over hot-air chamber F having a lining g, of asbestos.

H indicates a chamber located between partition G and top or lid A', and this chamber is filled with plaster-of-paris and sand.

L is a hot-air flue that passes horizontally through outer wall A into chamber H and through a portion of said chamber, the inner end z of said flue being curved downward and passing into hot-air chamber F through a centrally-located opening in partition G and its asbestos lining g. To the end z of hot-air flue L, just below lining g of partition G, is attached a cone-shaped deflector M, whereby the hot air is diffused over the bottom and toward the sides of hot-air chamber F. Immediately below deflector M and of the same dimensions as the mouth thereof is a protector-plate m', supported above partition E, forming the floor of the hot-air chamber, by feet m. This plate m' protects the center of partition E from being struck directly by the hot air entering chamber F through flue L and prevents the center of said partition E from being heated to a higher degree than are the other portions of the partition, thus heating said partition uniformly throughout its whole extent and producing a uniform temperature throughout egg-chamber B.

T indicates vertical draft-flues extending from near the bottom of hot-air chamber F up to and through top or lid A', and they are symmetrically disposed about the center of said chamber and adjacent to inner wall F' thereof; and S indicates the draft-flues leading from egg-chamber B up to and through the top of the incubator, as is common in incubators of this class.

On the outer end of hot-air flue L is a vertically-disposed heater-hood L', arranged outside of the case and adapted to take over the chimney of a lamp, (not shown,) as is usual, and through this hood the heated air from the lamp is conveyed to flue L. Hood L' extends above its connection with flue L, and in its

upper end is a valve-opening, closed by a valve-plate z' , connected by a bent rod n with a rock-shaft n' , journaled in arms N , projecting from the side of the case of the incubator.

5 In egg-chamber B is a rigid cross-bar R , and to the inner face of said cross-bar is secured the ends of an expansion-plate R' , having attached to the center thereof a rod r , which passes out through the walls of the
10 egg-chamber and is pivotally connected with the lower end of a vertically-disposed lever P , fulcrumed on a rod p , supported by arms P' , projecting from the outer wall of the case. The upper end of lever P has a vertical slot
15 p' therein, which is engaged by a crank n^2 on a downwardly-extending arm n^3 on rock-shaft n' .

In operation the hot air enters chamber F through flue L and is directed toward the
20 wall of that chamber by deflector M , and the cooler air is forced out of said chamber through draft-flues T by the pressure of the hotter air above it. Egg-chamber B is heated through partition E , and when the tem-
25 perature of said chamber rises above a certain point the plate R' expands to such an extent as to draw the lower end of lever P far enough inward to raise valve-plate z' and cut off the flow of hot air into chamber F .
30 When egg-chamber B is sufficiently cooled, the contraction of expansion-plate R' again lowers valve-plate z' .

I do not limit myself to any particular construction of the deflector or of the protector-
35 plate, neither do I restrict myself to the other details of the construction herein shown and described, as it is obvious that many alterations may be made therein without departing from the principle and scope of my inven-
40 tion.

Having thus described my invention, what

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

1. The combination, in an incubator, of an egg-chamber, a hot-air chamber above the egg- 45 chamber, a heat-conducting partition separating said chambers, a hot-air flue entering the top of the hot-air chamber, a deflector surrounding the inner end of the hot-air flue, a protector-plate between said partition and 50 the deflector, and upright draft-flues located around the protector-plate, for the purpose specified.

2. The combination, in an incubator, of an egg-chamber, a hot-air chamber above the egg- 55 chamber and of less diameter than said egg-chamber, a heat-conducting partition separating said chambers, a hot-air flue entering the top of the hot-air chamber, a deflector surrounding the inner end of the hot-air flue, 60 and a protector-plate above said partition and located beneath the deflector, for the purpose specified.

3. The combination, in an incubator, of an egg-chamber, a hot-air chamber above the egg- 55 chamber and of less diameter than said egg-chamber, a heat-conducting partition separating said chambers, a hot-air flue entering the center of the top of the hot-air chamber, a deflector surrounding the inner end of the 70 hot-air flue, a protector-plate supported above said partition and located beneath said deflector, and upright draft-flues leading outward from near the bottom of the hot-air chamber and disposed symmetrically around 75 the protector-plate and adjacent to the inner wall of said hot-air chamber, for the purpose specified.

DAVID C. COBLE.

Witnesses:

P. H. NISSLEY,
LEVI K. EBNOLE.