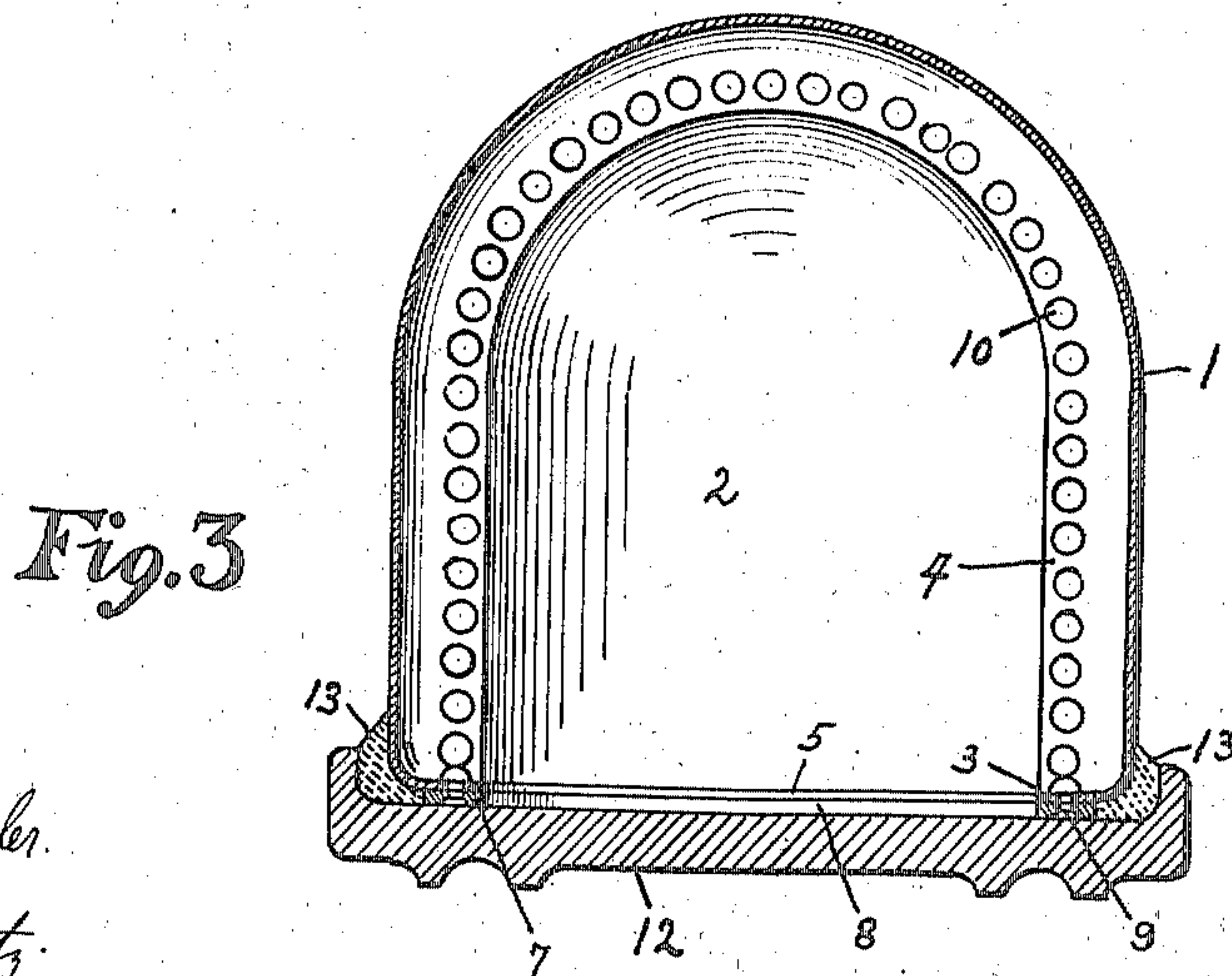
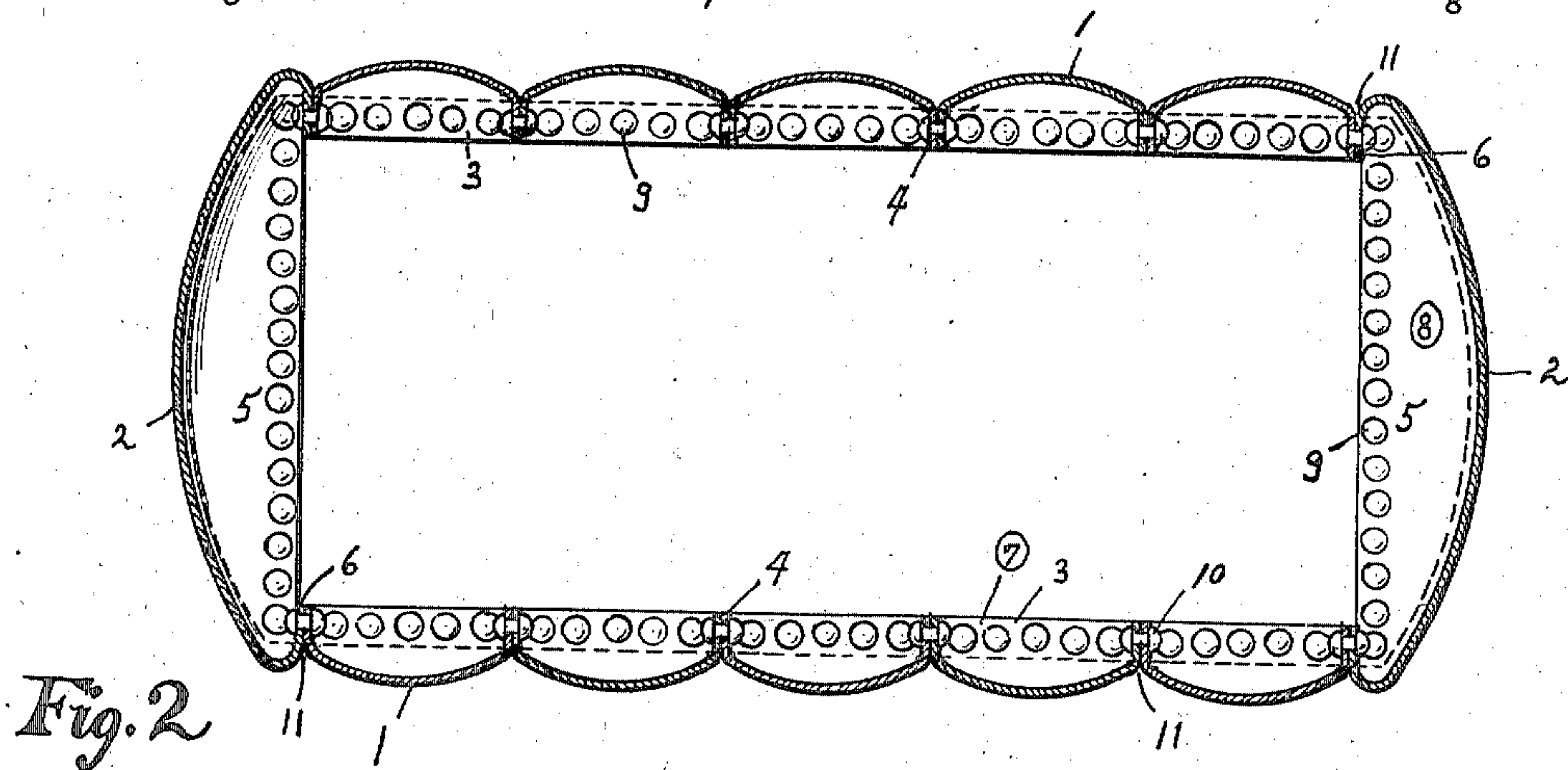
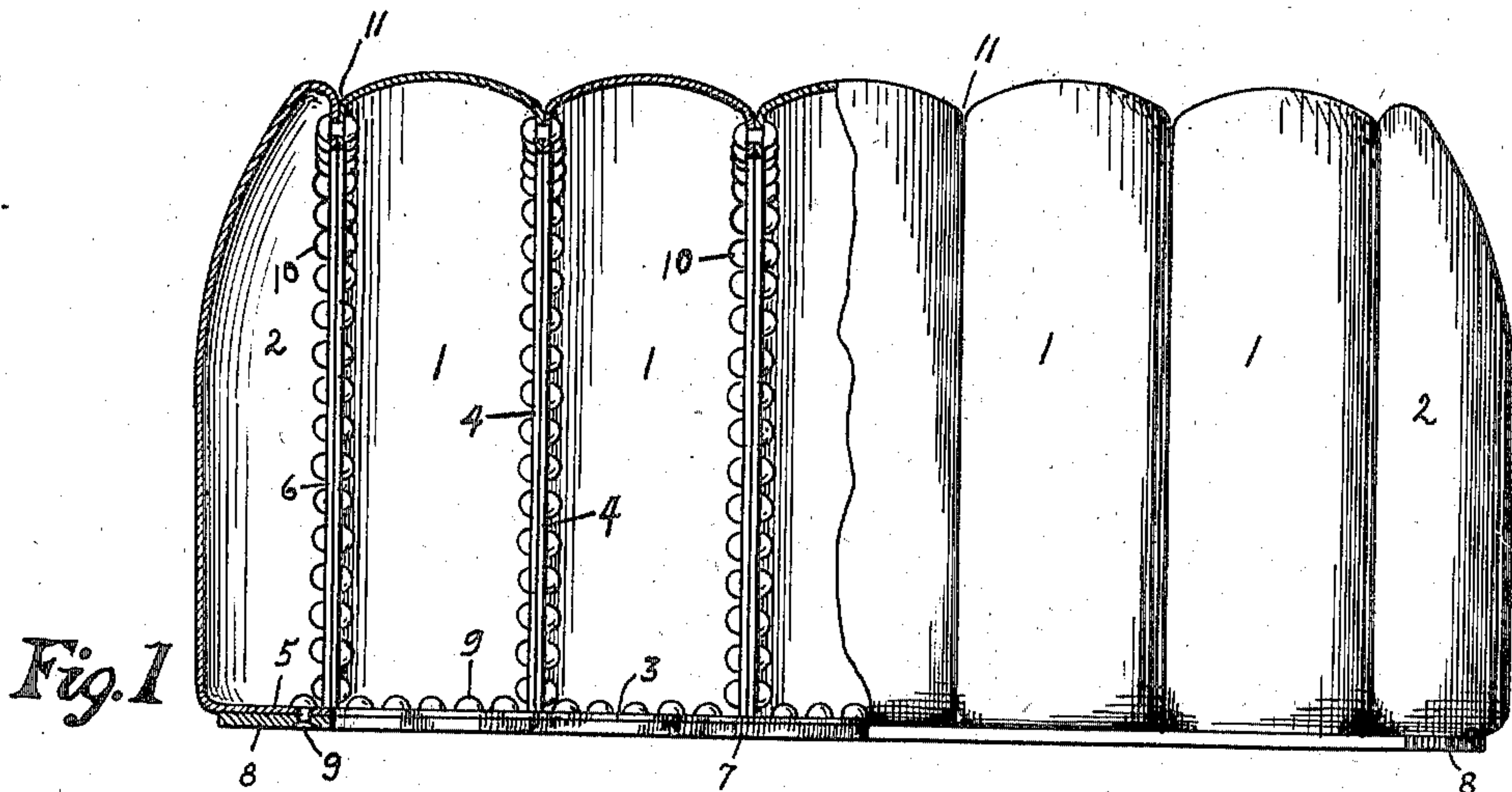


J. E. BOSSINGHAM.
ANNEALING BOX.
APPLICATION FILED SEPT. 24, 1909.

951,556.

Patented Mar. 8, 1910.



Witnesses
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UNITED STATES PATENT OFFICE.

JOHN E. BOSSINGHAM, OF CANTON, OHIO.

ANNEALING-BOX.

951,556.

Specification of Letters Patent.

Patented Mar. 8, 1910.

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To all whom it may concern:

Be it known that I, JOHN E. BOSSINGHAM, a citizen of the United States, residing at Canton, in the county of Stark and State of Ohio, have invented a new and useful Annealing-Box, of which the following is a specification.

My invention relates to improvements in metallic annealing boxes adapted for use in an annealing furnace and the particular construction illustrated in the accompanying drawing and hereinafter described has special reference to annealing boxes for the annealing of sheet metal, although such boxes may be employed for other annealing work, as will be readily understood.

The objects of my improvement are to generally improve annealing boxes, to provide an annealing box wherein the fastening means for the various parts will be protected from the direct action of the heat of the annealing furnace and in which all surfaces exposed directly to such heat will be of such formation as to prevent or minimize injurious buckling or warping of said parts, to reduce the wear and tear by providing a construction better adapted to withstand the usage to which such boxes are subjected and to increase the efficiency of such boxes in general. These objects together with other objects readily understood by those skilled in the art I attain by the construction illustrated in the accompanying drawing, in which—

Figure 1 is a side elevation of an annealing box made in accordance with my invention, a portion of said box being broken away to disclose the internal construction. Fig. 2 is a horizontal section through said annealing box. Fig. 3 is a vertical section through the box, the box in the said view being illustrated as mounted upon a bed plate for moving said box with its contents into and out of an annealing furnace.

Throughout the several views similar numerals of reference indicate similar parts.

The annealing box comprises a series of sections so formed that every portion of their externally exposed surfaces is outwardly curved. The fastening means for connecting the adjacent sections to each other is arranged upon the inside of the said

box. In accordance with these characteristics the numeral 1 indicates intermediate sections and the numeral 2 end sections. Each intermediate section is preferably formed of a heavy metallic plate shaped in accordance with the form of such sections illustrated in the drawings and bent longitudinally as illustrated in Fig. 3, to form an arched structure. The ends of each section, which are located at the bottom of the structure are turned inwardly to form the base flanges 3, the longitudinal edges are turned inwardly to form the transversely disposed side flanges 4, said flanges being adapted to be connected together as hereinafter more fully described. The body of each section 1 from flange 4 to flange 4 and throughout the longitudinal dimension of said section extending from one flange 3 to the other flange 3 thereof is bowed or pressed outwardly, forming a continuous externally convex surface, the inner surface of said portion of said section being correspondingly bowed outwardly and producing an inner concave surface. The convexo-concave formation just described is characteristic of every portion of each section which presents an external surface, as will be clearly seen from an inspection of the drawings. Each end section is similarly formed of a heavy metallic plate. The bottom end of each end section is turned inwardly to form the end base flange 5, while the other edges of the section are turned inwardly to form transversely disposed side flanges 6, said flanges being adapted to be connected to the side flanges 4 of the sections 1, as hereinafter more fully described. The body of each end section throughout its length and breadth from flange to flange is so formed as to bow outwardly, forming a continuous externally convex surface, every portion of such end section which presents an external surface being convexo-concave.

In assembling the sections a base frame comprising the side portions 7 and the end portions 8 is preferably provided, said base frame being adapted to strengthen and stiffen the structure along the base flanges of the various sections and at the same time to aid in holding the sections together.

The base flanges 3 and 5 of the various

sections may be connected to their respective portions of the base frame in any suitable mechanical manner, but one of the most practical methods of fastening is illustrated in the drawings in which the rivets 9 are provided with heads countersunk in the bottom surface of the base frame and extending through said frame, through the base flanges of the sections and headed down thereon as illustrated in the drawing. Side flanges 4 of the adjacently arranged intermediate sections 1 and the flange 4 and flange 6 of the adjacent sections at the ends of the box may likewise be connected or fastened together in any suitable mechanical manner. This may be accomplished by welding said flanges together by any suitable welding method, as by the "oxyacetylene method" but a very practical means of fastening said flanges is that shown in the drawings, which consists of the rivets 10 which extend through said flanges and are headed down upon each side as illustrated. It should be especially noted, however, that the portions of the flanges 4 and 6 so connected together and the fastening means lie wholly upon the inside of the box and are thus not exposed to the injurious action of direct contact with the heat and gases of the annealing furnace.

All joints between the connected flanges of the various sections should preferably be calked so as to make practically tight seams. In the practical use of such annealing boxes, however, it is a fact well understood by those skilled in the art that the seams or joints become more or less opened by long usage, and if such opening should occur in the case of a box such as herein described it will be noted that the opening may be readily closed by the use of fire clay from the outside. The various sections, having convex external surfaces, the meeting edges of adjacent sections lie at the inner extremity of a valley 11, which may be readily filled with fire clay in a plastic condition when desired, the formation of the sections being admirably adapted to retain said clay in position.

It is well understood that annealing boxes are usually subject to considerable warping by reason of the treatment to which they are subjected in the various heating and cooling processes through which they go. Such warping in many cases totally destroys the usefulness of the box in a short time, especially if the bulging or warping of the same extends inwardly, thus reducing the capacity of the box. It will be noted that in my invented construction any bulging or warping will naturally be directed outwardly, because of the already externally convex form of each and every part of said box directly in contact with the heat of the furnace.

In Fig. 3 of the drawings the annealing

box is shown mounted upon a bed plate 12. Said bed plate forms no part of the present invention but is illustrated to show the usual arrangement of annealing boxes in preparation for insertion into an annealing furnace. It will be noted in said figure that the fire clay 13 is packed around the bottom edges of said box. This packing of fire clay seals the said plate 12 to the box, as against the entrance of fumes or gases, and the seams of the box being calked as described the contents thereof will be maintained under proper conditions for satisfactory annealing.

I claim:

1. An annealing box comprising a plurality of sections joined together by fastening means located wholly within the interior of said box, the meeting portions of adjacent sections arranged at the inner extremities of external valleys, and the portions of said sections intermediate said valleys presenting externally convex surfaces.

2. An annealing box comprising a plurality of sections fastened together, the fastening means for said sections being located wholly within the interior of said box.

3. An annealing box comprising a plurality of sections, fastening means for said sections, said fastening means located wholly within the interior of said box, and the entire outer surface of said box being formed by the portions of said sections intermediate said fastening means.

4. An annealing box formed of a plurality of sections joined together, every section presenting a continuously curved external surface, and fastening means for said sections, said fastening means being located wholly within the interior of said box.

5. An annealing box comprising a series of intermediate sections and end sections joined together, the ends of each intermediate section turned inwardly to form base flanges, and the edges of each intermediate section turned inwardly to form side flanges, every portion of each intermediate section which presents an external surface being convexo-concave, the bottom end of each end section turned inwardly to form a base flange, the other edges of each end section turned inwardly to form side flanges, the said intermediate sections and end sections arranged with the side flanges of adjacent sections abutting, and internally located means for fastening said flanges together.

6. An annealing box comprising a series of intermediate sections and end sections joined together, the ends of each intermediate section turned inwardly to form base flanges, and the edges of each intermediate section turned inwardly to form side flanges, the bottom end of each end section turned inwardly to form a base flange, the other edges of each end section turned inwardly

to form side flanges, the said intermediate sections and end sections arranged with the side flanges of adjacent sections abutting, means for fastening said flanges together, every portion of said intermediate sections and end sections which presents an external surface being of convexo-concave formation.

In testimony that I claim the above, I have hereunto subscribed my name in the presence of two witnesses.

JOHN E. BOSSINGHAM.

Witnesses:

JOHN N. SPONSELLER,
WILLIAM H. MILLER.