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F. C. SANFORD.

METALLIC SHELL.

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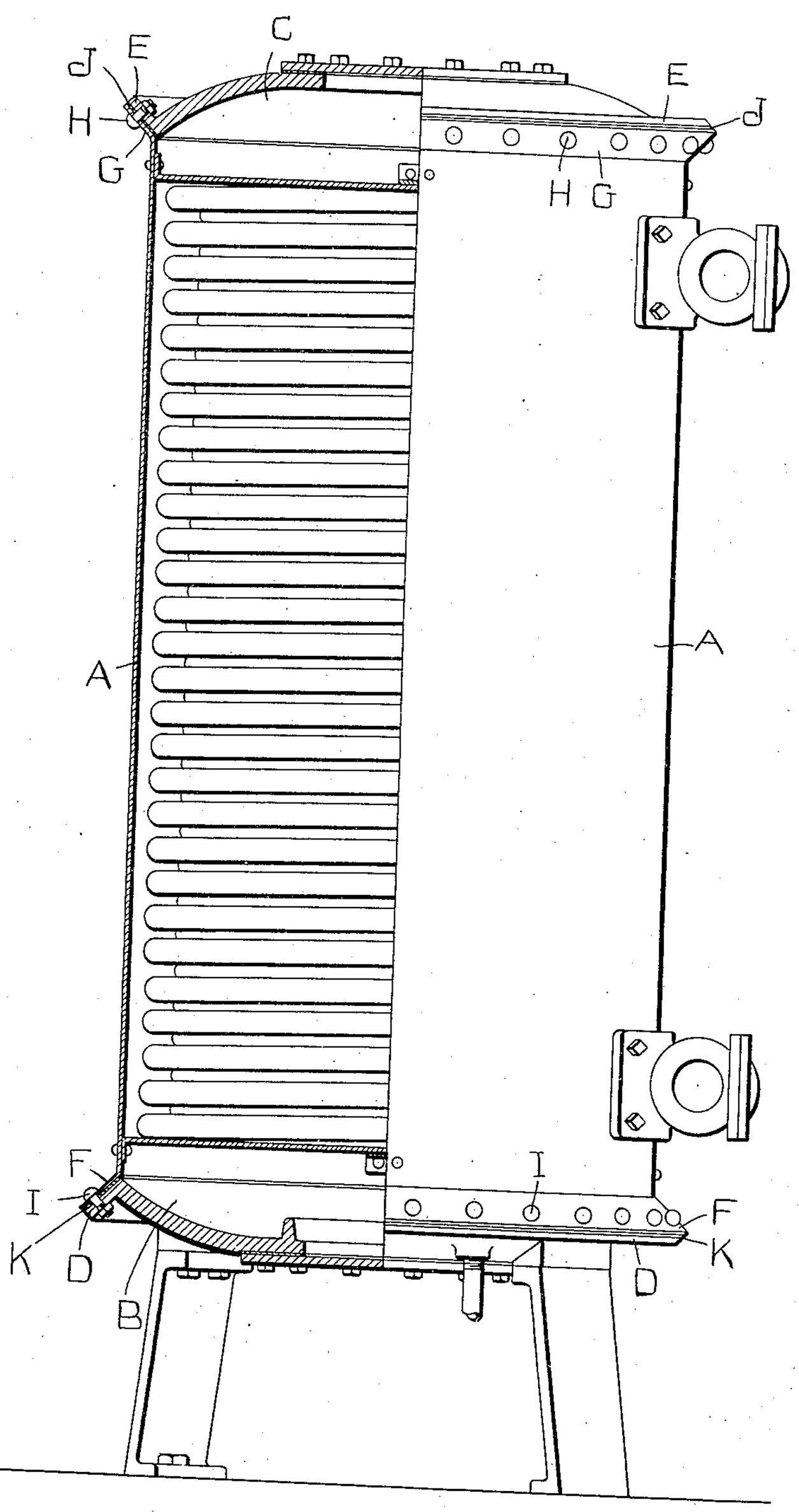

Witnesses

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METALLIC SHELL.

No. 894,288. Specification of Letters Patent. Patented July 28, 1908.

Application filed March 31, 1905. Serial No. 253,042.

To all whom it may concern:

Be it known that I, FRANK C. SANFORD, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Metal Shells or Cases, of which the following is a specification, accompanied by a drawing representing a feed-water heater having an inclosing case or shell embodying my invention and shown half in elevation and half in central sectional view.

My invention relates to a method of constructing metal cases or shells, such as are used for feed water heaters and other purposes, and it consists in an improved method of attaching the ends to the body of the case or shell, as hereinafter described and pointed out in the annexed claims.

Referring to the accompanying drawing representing a feed water heater having an inclosing case or shell constructed according to my invention, A denotes a cylindrical body made of wrought metal, such as boiler plate iron, and having its ends closed by the heads B and C. The heads are conveniently made of cast metal and are provided at their edges with beveled flanges D, E. Similar beveled flanges F and G are formed at each end of the body A adapted to form seats for the flanged heads B and C. The flanges F and G and the flanges D and E are attached by bolts H, I, either with or without interposed gaskets J, K.

By my improved method of attaching the heads to the body portion of a metal shell, I form but a single joint between the body and the head, said joint lying in an oblique plane to the axis of the case or shell, thereby allowing the heads to be drawn or pressed toward the center of the shell with a wedging effect which tends to tighten the joint. By forming oblique flanges on the ends of the body portion of the shell, I not only provide an ample seating surface for the flanges of the heads, but I accomplish this result with but a slight deflection of the metal forming the body of the shell, enabling the seat for the heads to be formed by the slight bending of the body of the shell, thereby avoiding any weakening of the metal and enabling the inner surface of the flanged ends of the body to be brought into a true conical plane adapted to accurately fit the outer surfaces of the beveled flanges of the heads B and C.

It has heretofore been proposed in the construction of metal shells or cases of this class to either form a right angled flange on the ends of the body to which the heads were attached or to attach to the ends of the cylindrical body a flanged ring and attaching the heads to the flanges of the ring. The first method requires right angled flanges to be turned on the body of the shell or case with their surfaces to be brought into a true plane adapted to fit the edges of the heads, and the latter method requires separate annular flanges which are attached to both the body and also to the heads requiring two joints at each end of the shell or case.

By my improved construction I require but one joint between the end of the body portion and the head and I form a seat for the head requiring less deflection of the body portion than is necessary in forming a right angled flange, and the bearing surface of the seat is in a plane at an oblique angle to the axis of the body, enabling a wedging action to be secured between the opposing surfaces of the body and heads.

When the oblique angled flanges of the body portion are turned outwardly forming extension flanges, as shown in the drawing, both ends of the attaching bolts are accessible, but in case the flanges of the body portion were to be turned inwardly only one end of an attaching bolt would be accessible.

Instead of employing bolts and nuts, one of the opposing flanges can be provided with screw threaded holes to receive the ends of the bolts.

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

1. In a metal shell or case, the combination with a head provided with a flange at an angle to said head not exceeding a right angle, of a body portion provided with a flange arranged to be parallel to the flange on said head when said head is in position, whereby pressure arranged to force said head inward will cause a sliding movement inward of the flange of said head upon the flange of said body portion, thereby tightening the joint between said flanges, and means for fastening said flanges together.

2. In a metal shell or case, the combination with a body portion provided with an exterior flange, of an outwardly curved head provided with a flange arranged to contact with the flange on said body portion, with said flanges bent so that the line of contact shall be a continuation of a radial line from the center of the arc formed by said outwardly curved head, whereby inward pressure upon said curved head will cause a sliding movement of said flanges upon each other, and means for fastening said flanges together.

Dated this 27th day of March 1905.

FRANK C. SANFORD.

Witnesses:
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