

1,354,706.

R. WARRINER.
EXPANSION JOINT.
APPLICATION FILED MAR. 25, 1918.

Patented Oct. 5, 1920.
2 SHEETS—SHEET 1.

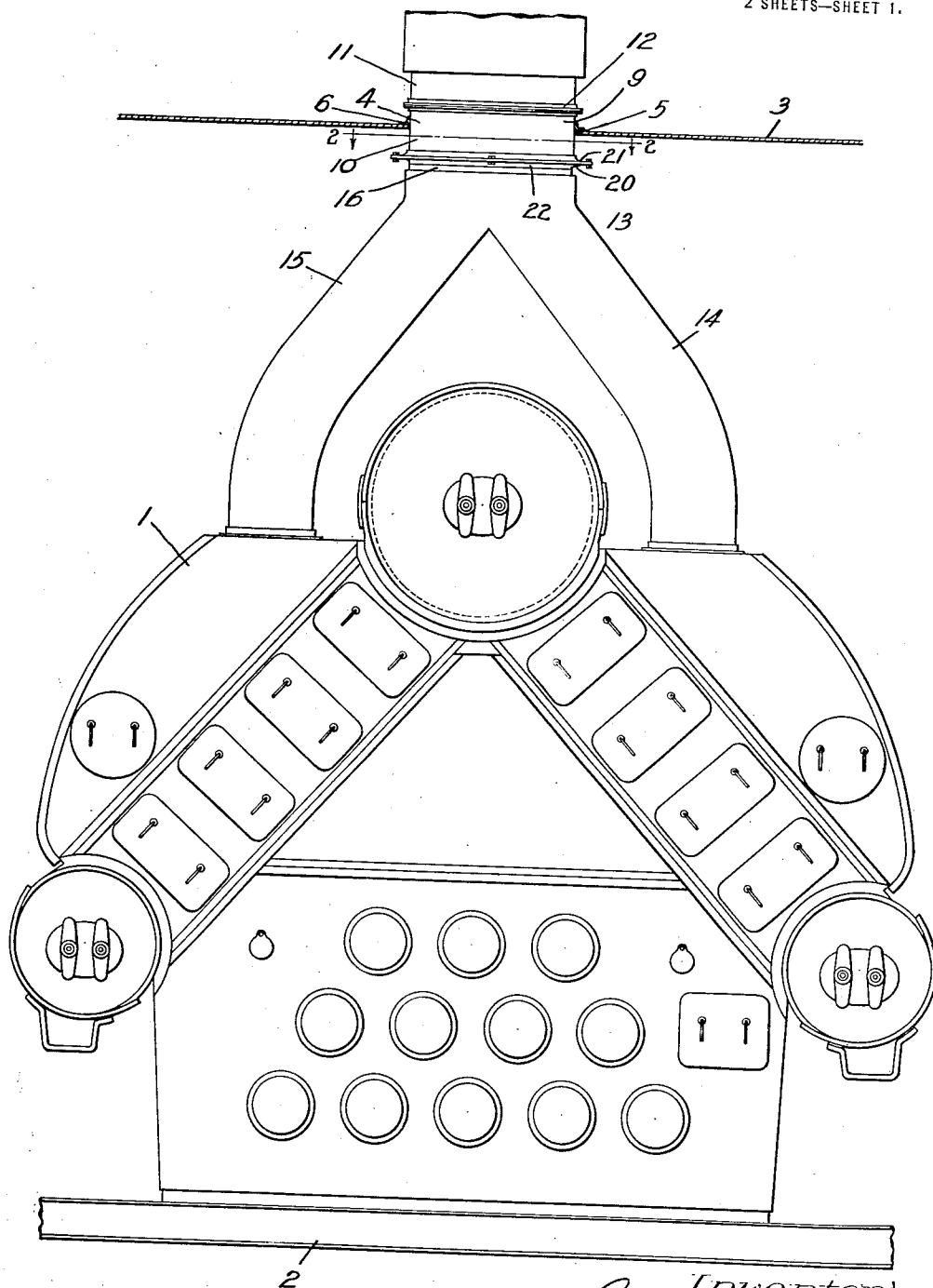


Fig. 1. *Inventor:*
Robert Warriner,
by his attorney
Charles S. Gooding.

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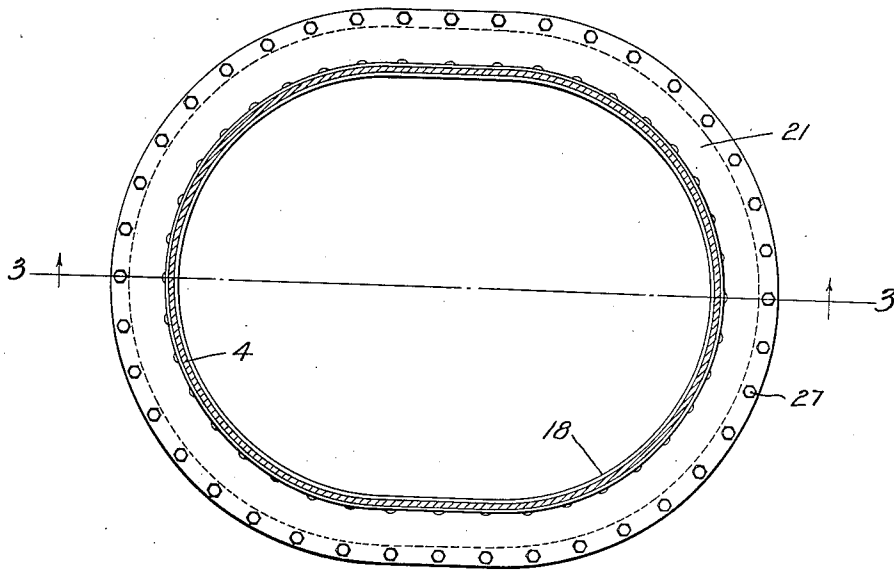


Fig. 2.

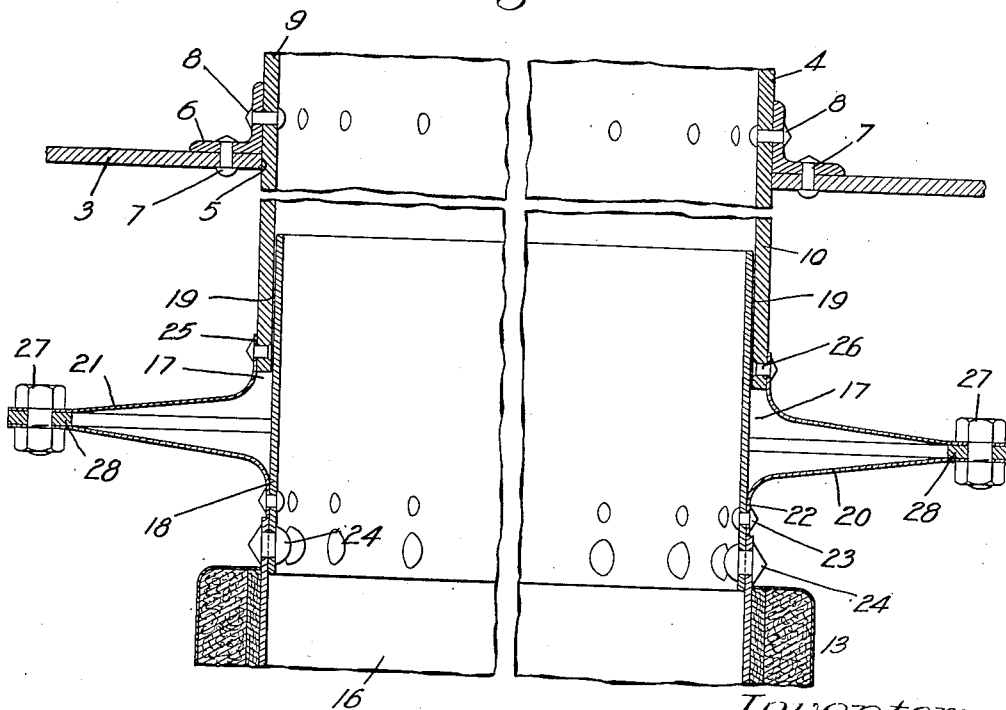


Fig. 3. Inventor:
Robert Warriner
By *W. H. Johnson*
Charles F. Gooding.

UNITED STATES PATENT OFFICE.

ROBERT WARRINER, OF QUINCY, MASSACHUSETTS, ASSIGNOR TO BETHLEHEM SHIP-BUILDING CORPORATION, OF QUINCY, MASSACHUSETTS, A CORPORATION OF DELAWARE.

EXPANSION-JOINT.

1,354,706.

Specification of Letters Patent.

Patented Oct. 5, 1920.

Application filed March 25, 1918. Serial No. 224,446.

To all whom it may concern:

Be it known that I, ROBERT WARRINER, a citizen of the United States, residing at Quincy, in the county of Norfolk and State of Massachusetts, have invented new and useful Improvements in Expansion-Joints, of which the following is a specification.

This invention relates to improvements in expansion joints and more particularly to expansion joints constructed for use on vessels, between a fixed stack and the boiler connected with said stack.

The object of the invention is to provide a simple, durable and tight joint constructed and arranged to be interposed between a fixed stack and the up-take of a boiler and other forms of heat generating devices to allow for the expansion and contraction of said up-take pipe and said boiler without disturbing said stack and without straining or rupturing the connecting elements of said boiler and stack.

The invention consists in the combination and arrangement of parts set forth in the following specification and particularly pointed out in the claim.

Referring to the drawings:

Figure 1 is a front elevation of a boiler with an expansion joint embodying my invention shown in connection therewith.

Fig. 2 is a section taken on the line 2—2 of Fig. 1.

Fig. 3 is a vertical section taken on the line 3—3 of Fig. 2.

Like numerals refer to like parts in all views of the drawings.

In the drawings, 1 indicates a boiler, preferably of the marine type, 2 indicates a deck upon which the boiler rests; 3 is a second deck disposed above the deck 2. A deck coaming 4 extends through a hole 5 in said deck 2 and is secured to said deck preferably by means of an angular ring 6 which may be either riveted or bolted to said deck at 7 and through one of the flanges of said ring, the other flange of said ring being also secured by means, such as rivets 8, to said coaming.

The coaming 4 has an upwardly extending portion 9 and a downwardly extending portion 10. To the upwardly extending portion 9 of said coaming a stack 11 is attached by a suitable ring 12, thus maintaining said stack in fixed relation to said deck 3. The boiler 1 has an up-take pipe 13 consisting, in the present instance, of two parts 14 and

15 which unite at 16 and the united portion thereof and said coaming 4 are disposed substantially end to end with a slight gap 17 between the adjacent ends thereof.

Secured to one of said ends, preferably the end of the up-take pipe 16, is a sleeve 18 which is small enough in diameter to telescope the downwardly extending portion 10 of said coaming. In order to allow the sleeve 18 to reciprocate within the coaming 10 when the up-take pipe is expanded or contracted, it is necessary to provide a difference in diameter between said sleeve and said coaming and consequently a space 19 is provided through which gas or smoke might, under certain conditions, escape to the space between the deck 2 and the deck 3 and in closed stokeholds under air pressure might allow the air to escape freely into the smoke pipe and to prevent such leakage means are provided, consisting preferably of a pair of resilient rings 20 and 21.

The ring 20 is disposed laterally with respect to the united portion 16 and has a cylindrical portion 22 which is secured to the sleeve 18, preferably by rivets 23, in close proximity to the upper end of said up-take pipe 13 and said sleeve is secured, preferably by rivets 24, to said up-take pipe, thereby permanently securing said ring 20 to said up-take pipe.

The resilient ring 21 is disposed in a similar manner with respect to the portion 10 of said coaming and said ring has a cylindrical portion 25 which is preferably permanently secured to said coaming, preferably by rivets 26. The rings 20 and 21 are secured together along their outer margins preferably by means of a series of bolts 27, and to insure the joint between said rings being tight or leak proof, a packing ring 28 of suitable material is interposed between the adjacent edges of said rings and these edges are securely bound to said packing ring by said bolts 27.

The normal position of the up-take pipe relatively to the coaming, when said up-take pipe is contracted, is as shown in Fig. 3, at which time the gap 17 will be at its maximum width. As the fire is increased in the boiler 1 the heat thereof will be transmitted to the up-take pipes 14 and 15 which will elongate, under certain conditions, to the extent of three-fourths of an inch, and in so doing the upper end thereof, that is the end

to which the sleeve 18 is secured, will move upwardly, reducing the width of said gap 17 and causing said sleeve to move farther into the coaming 4. At the same time, the
5 ring 20 will be moved toward the ring 21 and both of said rings will be deflected to permit such movement without disturbing the stack or deck on which said stack is mounted and without straining or rupturing
10 any of the connecting elements between said up-take pipe and said stack.

Having thus specifically described my invention what I claim and desire by Letters Patent to secure is:

15 In combination, a boiler, a deck disposed above said boiler, a coaming secured to and extending above and below said deck, a stack

secured to the upwardly extending portion of said coaming, an up-take pipe interposed between the downwardly extending portion 20 of said coaming and said boiler, a leak-tight joint interposed between the upper end of said up-take pipe and said coaming, adapted to allow for the elongation and contraction of said up-take pipe, and a sleeve attached 25 to said up-take pipe and arranged in telescopic relation with said coaming.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ROBERT WARRINER.

Witnesses:

CHARLES S. GOODING,
SYDNEY E. TAFT.