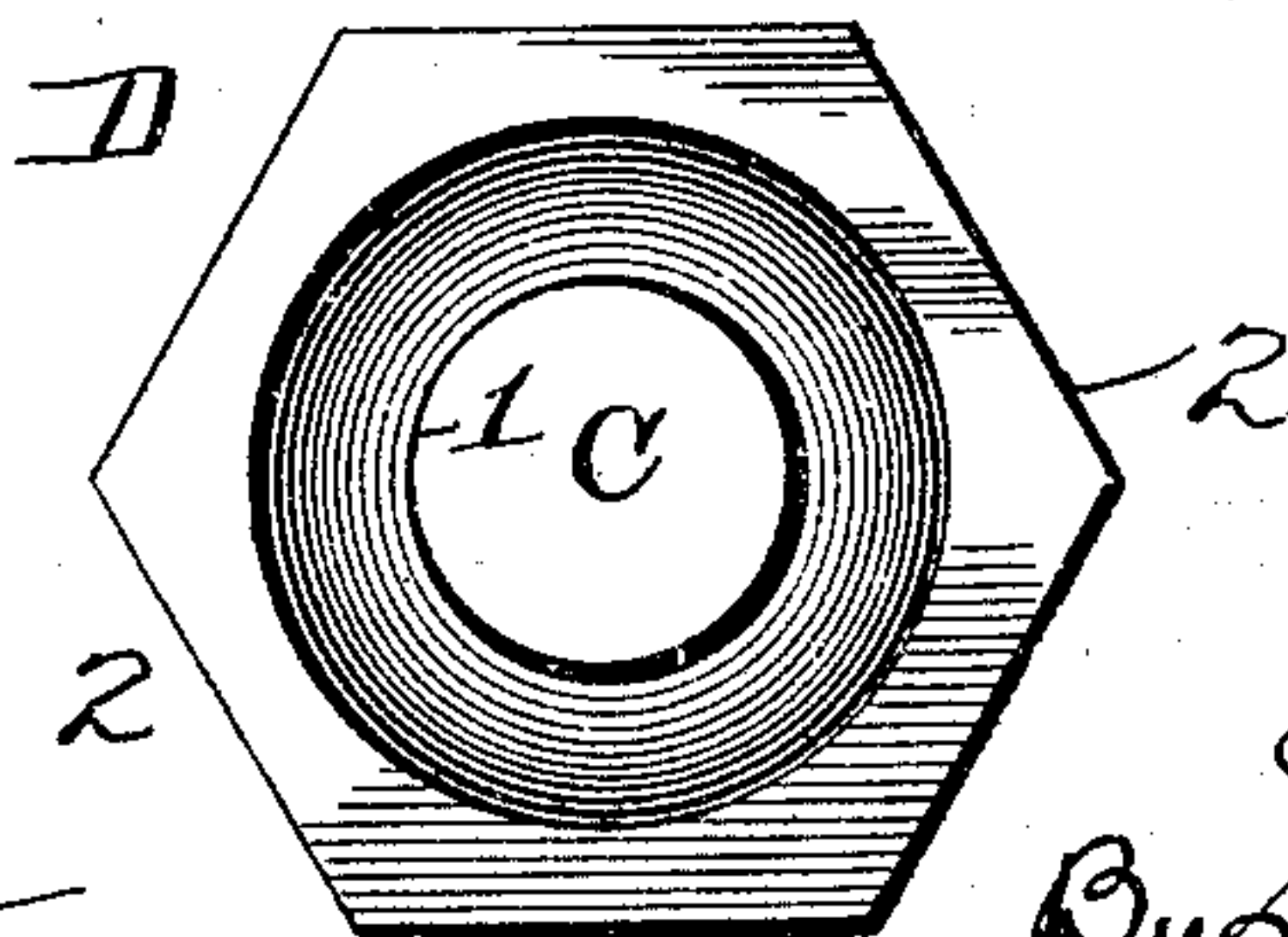
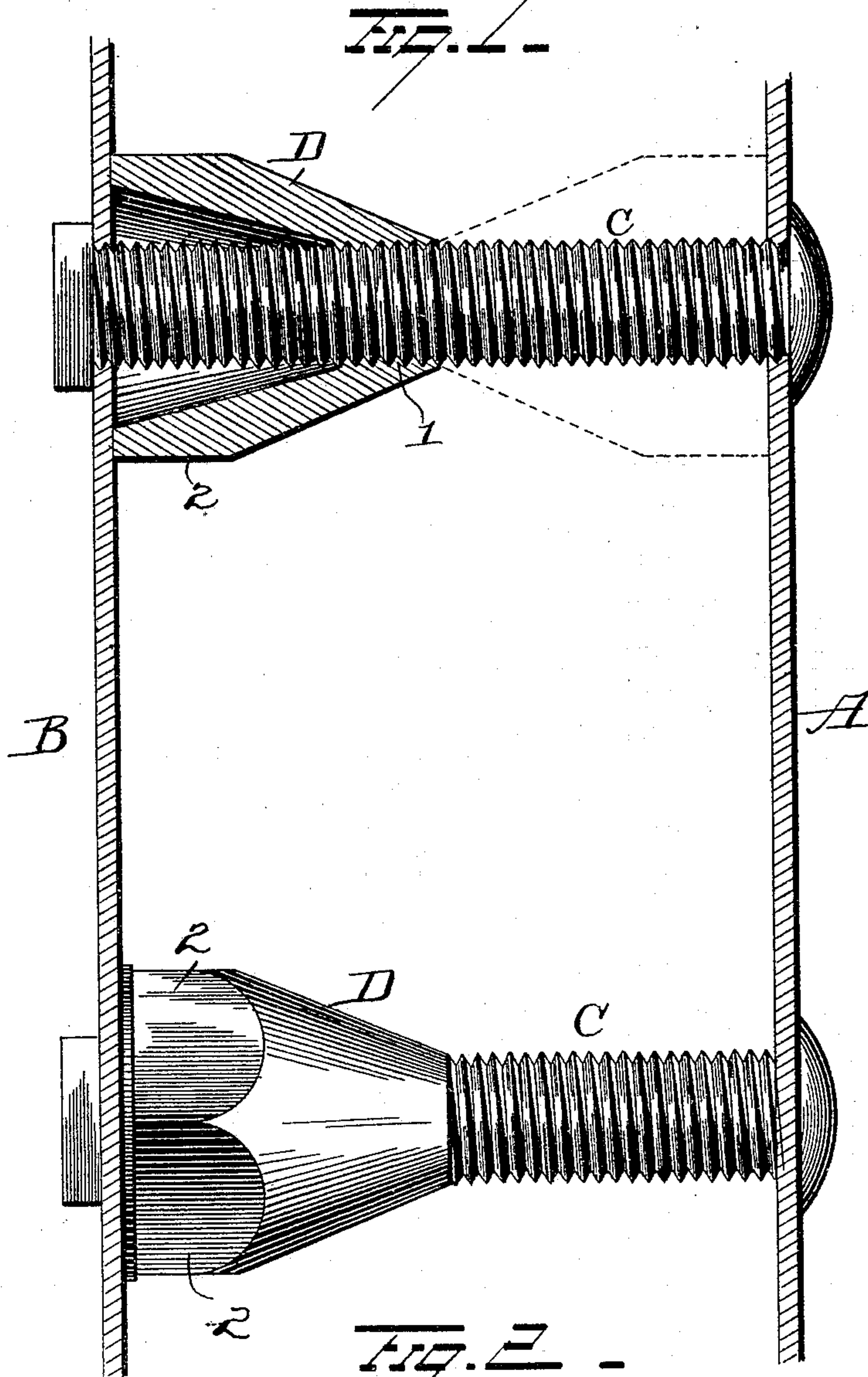


(No Model.)

F. J. COINS.
PROTECTOR FOR STAY BOLTS.

No. 604,369.

Patented May 24, 1898.



WITNESSES
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UNITED STATES PATENT OFFICE.

FRANCIS J. COINS, OF MARSHALL, TEXAS.

PROTECTOR FOR STAY-BOLTS.

SPECIFICATION forming part of Letters Patent No. 604,369, dated May 24, 1898.

Application filed January 8, 1898. Serial No. 666,081. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS J. COINS, of Marshall, in the county of Harrison and State of Texas, have invented certain new and useful Improvements in Protectors for Stay-Bolts; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to a protector for stay-bolts, and more particularly to such as are used with boiler-furnaces, the object of the invention being to provide means whereby to protect the stay-bolts where they pass through the water-chamber from the deteriorating effects of the water and sediment and also protect them from breakage on account of the unequal expansion of the fire-box and the outer shell of the boiler-furnace.

With this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts, as hereinafter set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view of a portion of a boiler-furnace for a locomotive, showing the application of my invention thereto. Fig. 2 is a detail view.

A represents the shell of the fire-chamber, B the outer shell of the boiler-furnace, and C the stay-bolts. Each stay-bolt is screw-threaded and the protector D is located at a point centrally between its ends.

The protector D is made conical in form and is preferably hollow, and the smaller end of the cone is disposed practically flush with the exterior of the bolt, so as to prevent the collection of sediment at this point and also to prevent the deteriorating effect of the water, whereby the protector and the bolt meet. The interior of the smaller end of the cone is made cylindrical for a short distance, as shown at 1, and is screw-threaded, so as to screw on the bolt. The larger end of the protector is made externally with flat faces 2 for the accommodation of a suitable wrench, whereby the protector can be turned on the bolt and made to bear at its larger end tightly against the inner face of the outer shell, so as to prevent contact by the water with the

bolt where it passes through the said outer shell. The connection between the larger end of the protector and the inner face of the outer shell should be water-tight, and, if necessary, a gasket may be inserted between the protector and the shell B.

It is well known that the shell of the fire-chamber expands to a greater extent than the outer shell B of the boiler-furnace and that the expansion of the said shell of the fire-chamber is upwardly. The result is that the stay-bolts have been broken at points close to the outer shell. By means of my protector this will be impossible, as the spring or strain on the bolt will be at the center thereof and the bolt will be kept intact. It has been customary to use larger bolts at the top of the shell of the fire-chamber, as the major portion of the strain comes at that point; but with the use of my improved protector all the stay-bolts may be made of a uniform size.

If desired, two protectors may be used on each bolt, the apices of the cones meeting at the center of the bolts, as indicated by dotted lines at 4.

My improvements are simple in construction and effectual in all respects in the performance of their functions.

Slight changes might be made in the details of construction of my invention without departing from the spirit thereof or limiting its scope, and hence I do not wish to limit myself to the precise details herein set forth.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A bolt-protector having a conical outer face, a conical inner face, a screw-threaded opening communicating at one end with the conical interior of the protector and terminating at the other end coincident with the end of the conical outer face, the larger end of the protector being adapted to bear against a boiler-plate and having flat peripheral faces to receive a wrench, substantially as set forth.

2. The combination with two shells of a boiler, of screw-threaded bolts connecting said shells, and conical protectors on said bolts, one end of each protector bearing against the inner face of the outer shell and

the other end of said protector terminating intermediate of the end of the bolt on which it is screwed, substantially as set forth.

3. The combination with the shell of a fire-
5 chamber and an outer shell with an intervening water-space between said shells, of bolts passing through said shells and the water-space, each bolt having a screw-threaded portion, a conical protector adapted to screw
10 at its smaller end on each bolt so as to terminate between the ends of said bolt and

each protector being adapted to bear tightly against the inner face of the outer shell, substantially as set forth.

In testimony whereof I have signed this 15 specification in the presence of two subscribing witnesses.

F. J. COINS.

Witnesses:

B. B. HALL,
W. C. LANE.