

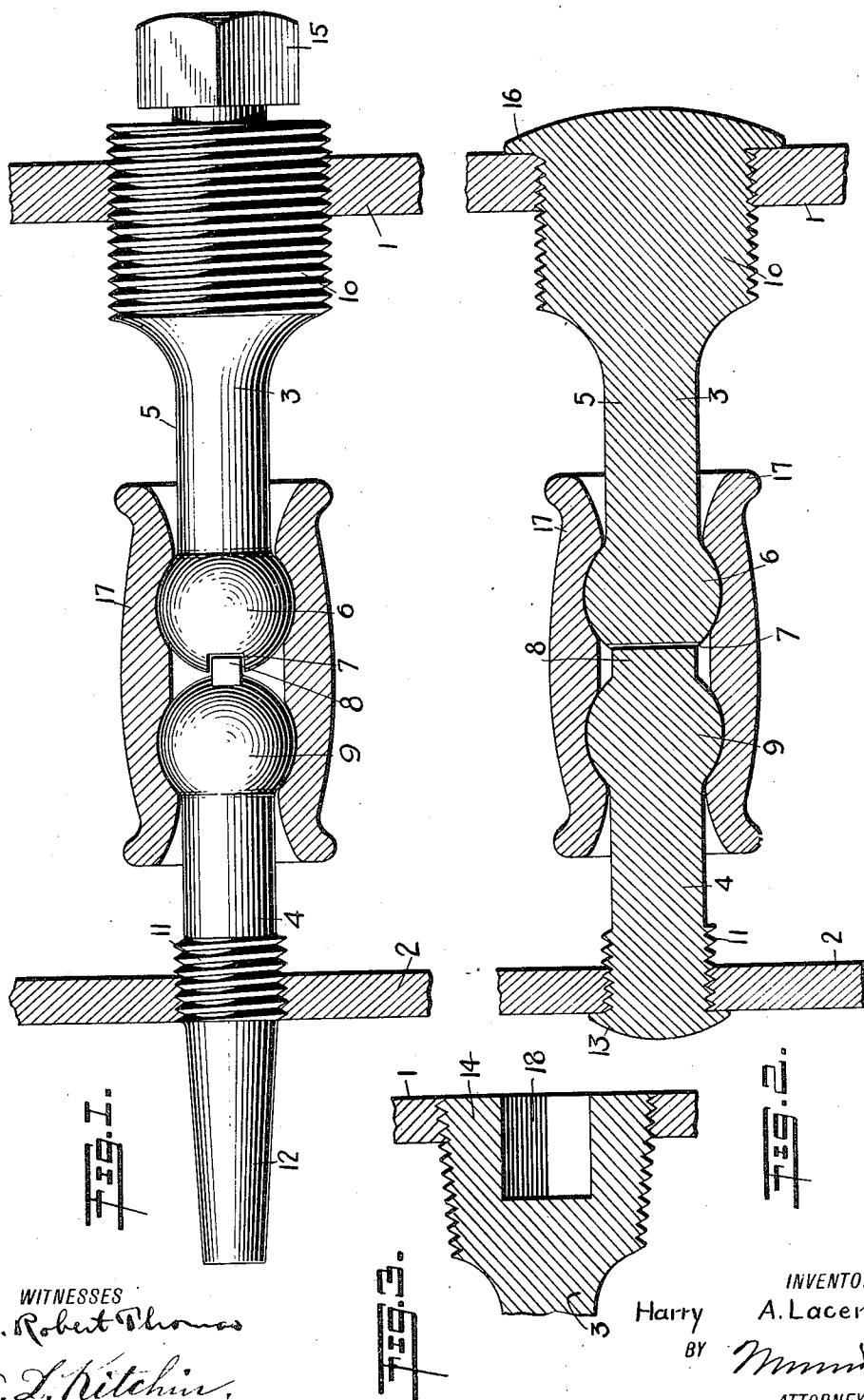
H. A. LACERDA.

STAY BOLT.

APPLICATION FILED NOV. 8, 1912.

1,069,436.

Patented Aug. 5, 1913.



WITNESSES  
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FIG. 3.

Harry  
BY

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# UNITED STATES PATENT OFFICE.

HARRY A. LACERDA, OF ALBANY, NEW YORK.

## STAY-BOLT.

1,069,436.

Specification of Letters Patent.

Patented Aug. 5, 1913.

Application filed November 8, 1912. Serial No. 730,164.

To all whom it may concern:

Be it known that I, HARRY A. LACERDA, a citizen of the United States, and a resident of Albany, in the county of Albany and State of New York, have invented a new and Improved Stay-Bolt, of which the following is a full, clear, and exact description.

This invention relates to improvements in stay bolts, and has for an object to provide an improved structure which may be readily applied and securely fastened in place without injuring the same or affecting the flexibility of the device.

A further object of the invention is to provide a stay bolt formed in two parts flexibly connected by a suitable sleeve and provided with end portions threaded for being screwed into place on a boiler, as for instance a locomotive boiler, previous to the upsetting of the ends of the bolt.

In carrying out the objects of the invention, a bolt structure is provided with a pair of articulated members having threads near each end, the threaded portions being preferably of different sizes so as to allow the pivotal joint or articulated portion which includes the connecting sleeve, to pass through any form of plate during the fitting of the stay bolt in place. As both the ends 30 of the stay bolt are threaded, the bolt is held in place by threads, but in order to positively prevent leakage and to insure a proper holding action, the ends of the bolt are severed or shortened to any desired extent and 35 then riveted or upset.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of a stay bolt embodying the invention, part of the same being shown in section for the purpose of illustration, and the bolt being associated 45 with a pair of boiler plates; Fig. 2 is a longitudinal vertical section through a pair of stay bolts embodying the invention, the same being shown with their ends upset and the bolts properly secured in place; and Fig. 3 is a fragmentary sectional view through one 50 end of the stay bolt, the same disclosing a slightly modified form of the invention.

Referring to the accompanying drawings by numerals, 1 indicates the outer boiler plate and 2 the inner boiler plate, for receiving the parts 3 and 4 of the stay bolt 5.

The part 3 is provided with a ball 6 having a notch or slot 7 at its ends for accommodating a tongue or projection 8 on the ball 9 of part 4, so as to allow rotary motion to be transmitted from part 3 to part 4 while not interfering with a proper pivotal movement of the respective parts. The projection or tongue 8 is preferably made to fit loosely in notch 7 so as to positively not interfere with the movement of the parts 3 and 4 during the expansion and contraction of the boiler plates. Part 3 is provided at the end opposite the ball 6 with an enlarged threaded portion 10 which is adapted to be threaded in the boiler plate or head 1 simultaneously with the threaded portion 11 of part 4 being threaded into plate 2, the threads on the parts 3 and 4 being of such a size as to allow the parts to be properly screwed in place. In order to positively cause the part 4 to enter the threaded opening in plate 2, the same has a tapering end 12 which is adapted to be severed or cut off for any desired length and then to be upset, as shown at 13 in Fig. 2, for locking the part 4 in place and also providing a tight joint. In order to provide a tight joint for part 3 with respect to plate 1, the end or squared portion 15 is cut off, leaving a sufficient amount of material to be upset, and form a head 16.

In operation, when it is desired to insert one of the stay bolts, the tapering portion 12 is passed through the opening in plate 1 and also through the opening in plate 2. A tool is then applied to the squared portion or head 15 which extends from the threaded portion 10, and the bolt revolved until the same has assumed the position shown in Fig. 1. The ends then are severed and upset as just described. This completes the operation of applying and securing the bolt properly in place. It will be noted that the parts 3 and 4 are connected together by a sleeve 17 having ends pressed radially inwardly so as to encircle the balls 6 and 9 for connecting the parts 3 and 4 properly together. However, in pressing or squeezing the ends of the sleeve 17 the same are not forced tightly against the balls 6 and 9, but ample space is left for the proper loose movement required in stay bolts to take care of the expansion and contraction of the plates 1 and 2.

Referring more particularly to the construction shown in Fig. 3, it will be seen that the part 3 is formed with a tapering

head 14 provided with threads for engaging the boiler plate 1. This head is provided with a squared socket 18 into which a squared tool may be inserted whenever it is desired to place the bolt in position. It will be noted that the tapering of the head 14 will cause the threads arranged thereon to tightly fit against the threads arranged on the plate 1 and so make a perfectly tight joint when the bolt is screwed down into position. It will be evident that the head in the preferred structure may be tapered if desired, without departing from the spirit of the invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. In a stay bolt, a connecting sleeve having both ends bent inwardly, and a pair of bolt members having enlarged ends fitting into said sleeve and held in place thereby.
2. In a stay bolt of the class described, the combination with a pair of plates, an inner and outer plate, said outer plate being formed with an aperture of larger diameter than said inner plate, each of said apertures being threaded, of a pair of bolt members formed with rounded heads on their inner

ends, one of said heads being formed with a notch and the other of said heads being formed with a raised portion projecting into said notch, a connecting sleeve fitting over said heads formed with socket portions for accommodating said heads whereby said heads may be allowed a limited free movement, the ends of said bolts opposite said heads being threaded whereby said bolts may be screwed into place from the interior of said outside plate.

3. In a stay bolt of the class described, a sleeve formed with a socket at each end and a pair of bolts formed with rounded heads, loosely fitting into said sockets, one of said heads being formed with a notch and the other of said heads being formed with a projection fitting into said notch and each of said bolts being formed with retaining means positioned near the ends opposite said heads.

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

HARRY A. LACERDA.

Witnesses:

EDWIN W. SANFORD,  
JOSEPH F. HAVLAK.