Nov. 18, 1930. J. T. KELLY 1,781,848

JOINT

Filed March 12, 1928

Fig. 1.

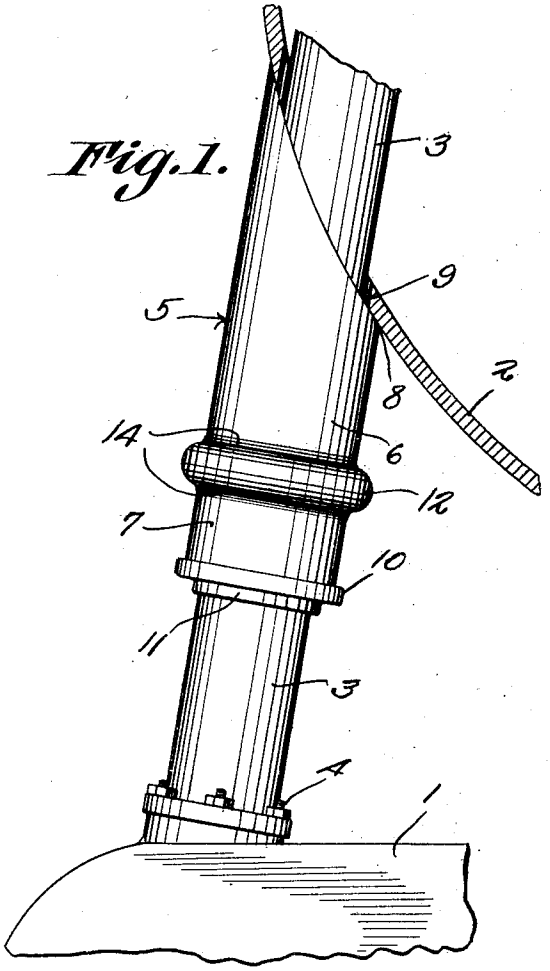
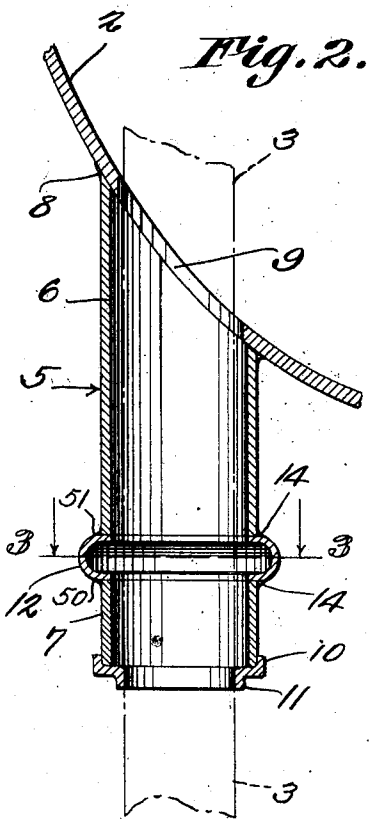


Fig. 2.



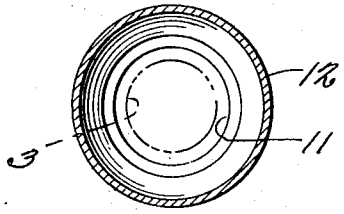


Fig. 3.

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UNITED STATES PATENT OFFICE

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JOINT

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By way of explanation, it may be stated that much difficulty has been experienced heretofore, in keeping an air tight joint at the place where the pipe that carries the live steam from the boiler of a locomotive engine to the steam chest or cylinders passes through the shell plate of the smoke box of the front end ring of the boiler and into the smoke box. The foregoing being understood, it is now pointed out that one object of the present invention is to provide an expansible joint in the casing around a steam pipe of the kind above mentioned, the construction being such that air leakage will be avoided, thus preventing air leaks into the smoke box of the forward end of the boiler.

It is within the province of the disclosure to improve generally and to enhance the utility of devices of that type to which the invention appertains.

With the above and other objects in view, which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed, may be made within the scope of what is claimed, without departing from the spirit of the invention.

In the accompanying drawings:—

Figure 1 shows in elevation, a device constructed in accordance with the invention;

Figure 2 is a longitudinal section;

Figure 3 is a cross section on the line 3—3 of Figure 2.

The numeral 1 marks the steam chest or cylinders of a locomotive engine. That portion of the shell of the boiler which forms the smoke box, is designated by the numeral 2. At 3 is shown the pipe which receives steam from the boiler and discharges the steam into the steam chest or cylinders 1. The steam is discharged from the steam chest or cylinders through the exhaust ports in the cylinders into the nozzle stand (not shown), as exhaust, into the smoke stack (not shown). The pipe 3 is secured in any desired way, as shown at 4, to the steam chest 1.

In carrying out the invention, there is provided a tubular casing which, as a whole is designated by the numeral 5. The casing 5 is made up of tubular members 6 and 7. The upper end of the member 6 is welded, as shown at 8, to the shell 2, about the opening 9 through which the pipe 3 passes. The pipe 3 extends through the members 6 and 7 of the casing 5. The lower end of the member 7 is received within the annular flange 10 of a collar 11 which has an air tight fit around the pipe 3. Calking, or any other common expedient, may be resorted to in order to obtain a tight joint where the pipe 3 passes through the collar 11. The numeral 12 designates an annular intermediate piece which, in cross section, is trough-shaped as shown in Figure 2 of the drawing. The intermediate piece 12 preferably is fashioned from sheet copper, and, owing to the shape of the intermediate piece 12, and to the circumstance that it is formed of sheet copper, the intermediate piece is capable of expanding and contracting much more freely than are the members 6 and 7 of the casing 5, the members 6 and 7 generally being formed from wrought iron. The intermediate piece 12 is arranged is substantially concentric relation with respect to the casing 5, and one of the side walls 50 of the intermediate piece is welded directly, as indicated at 14, to the inner end of the member 7 of the casing 5, the other of the side walls 51 of the intermediate piece being welded directly to the inner end of the member 6 of the casing.

It will be understood readily that, owing to the provision of the intermediate piece 12, the casing 5 can yield somewhat, and there will be no leakage at the place where the pipe 3 passes into the shell 2, it being recalled that the passage of exhaust steam through the stack will suck air into the smoke box, if there is any leak through which the air can find entrance.

In the drawings, the casing 5 is shown on the outside of the shell 2, but a person skilled in the art will understand readily that the casing 5 can be placed inside of the shell if, for any reason, such a construction is considered desirable.

Having thus described the invention, what is claimed is:—

The combination with the boiler shell of a locomotive engine, and a steam pipe entering the shell: of a tubular casing about the pipe, one end of the casing being hermetically closed about the pipe, and the opposite end of the casing being connected to the shell, and an annular expansible intermediate piece fashioned from a metal which is more expansible than the casing, the intermediate piece being U-shaped in cross section and being arranged in substantially concentric relation with respect to the axis of the casing, the U-shaped piece being interposed in the casing, and separating the casing into parts, the inner end of one part of the casing being secured directly to one of the side walls of the intermediate piece, and the inner end of the other part of the casing being secured directly to the other side wall of the intermediate piece.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature.

JOHN THOMAS KELLY.