

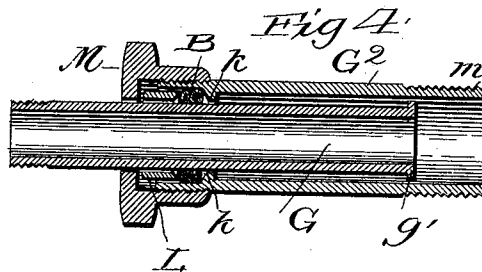
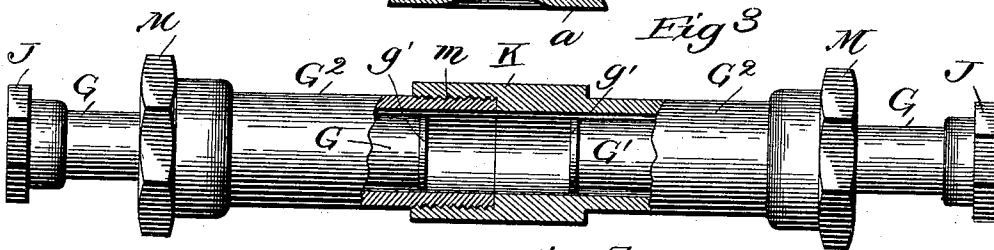
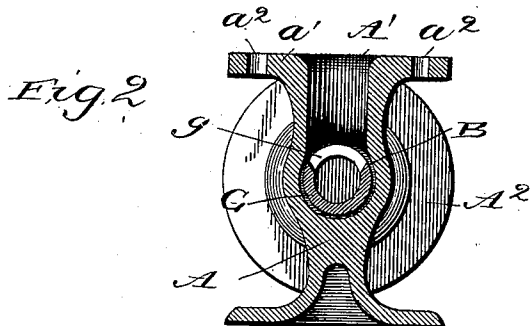
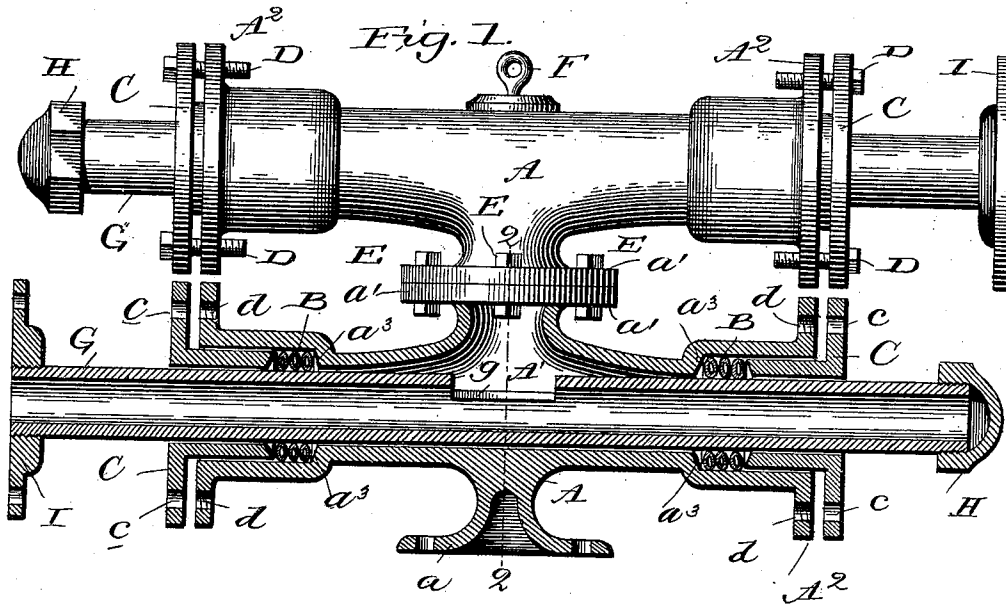
No. 615,767.

Patented Dec. 13, 1898.

J. B. WADE.
EXPANSION STEAM JOINT.

(Application filed Apr. 11, 1898.)

(No Model.)



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES B. WADE, OF LITTLE ROCK, ARKANSAS.

EXPANSION STEAM-JOINT.

SPECIFICATION forming part of Letters Patent No. 615,767, dated December 13, 1898.

Application filed April 11, 1898. Serial No. 677,250. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. WADE, a citizen of the United States, residing at Little Rock, in the county of Pulaski and State of Arkansas, have invented a new and Improved Expansion Steam-Joint, of which the following is a specification.

This invention relates to certain new and useful improvements in expansion steam-joints; and it has for its objects, among others, to provide a joint of this character by means of which the steam-pipe may be disposed at any desired angle with perfect safety, it being designed to be used in place of various steam-fittings now in use where it is desired to permit of the expansion of the pipe, and my construction of joint is such that it effectually takes up the expansion of the pipe.

The joint is designed to be made in sizes conforming to the pipe in use. It can be applied with ease without the necessity for skilled labor and in practice has been found to be most efficient for the purposes for which it is intended, as well as durable.

Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be specifically defined by the appended claim.

The novelty in this instance resides in the peculiar construction and the combination, arrangement, and adaptation of parts, all as more fully hereinafter described, shown in the drawings, and then particularly pointed out in the claim.

The invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this specification, and in which—

Figure 1 is a side elevation, partly in section, of a double expansion-joint designed for cross-lines running at any angle. Fig. 2 is a vertical cross-section on the line 2 2 of Fig. 1. Fig. 3 is a view, partly in elevation and partly in section, showing the double expansion-joint as constructed for straight-line work. Fig. 4 is a longitudinal section of one-half of Fig. 3.

Like letters of reference indicate like parts throughout the several views.

Referring now to the details of the drawings by letter, A designates a casting having

a suitable base *a*, provided with openings for the passage of securing means whereby it may be affixed in position and upon its upper side provided with a flange *a'*, provided with openings *a²* for the reception of the bolts which secure it to the flange upon the under side of the upper part, soon to be described. The part A is bored longitudinally, as shown, and centrally provided with the passage *A'*, as seen best in Fig. 2, to permit of the passage of steam from the one part to the other. At its ends this part A is provided with the interior shoulders *a³*, which serve a function which will be described later on, and beyond the shoulders the ends are enlarged to form chambers for the reception of the packing B and for the glands C, which extend into the chambers around the expansion-pipe and are secured in position by bolts D, passing through coincident openings *c* and *d* in the flanges of the glands and the flanges *A²* at the ends of the part A, as seen clearly in Fig. 1. As seen clearly in Fig. 1, the packing is confined between the inner ends of the tubular portions of the glands and the shoulders *a³*, it being understood that any kind of packing suitable for the purpose may be employed.

The upper part is similar in all respects to the lower part just described, and the elements thereof have been correspondingly lettered. A description thereof does not seem necessary, it being evident that the two parts though alike in their construction are reversely arranged and that the two opposing flanges *a'* are secured together by the bolts E, which pass through the coincident openings *a²* thereof, as seen in Fig. 1. The main part on top in Fig. 1 is shown as provided with an eyebolt F, whereby the joint may be suspended, if desired.

The flanges *a'* form a convenient way of connecting the parts and permit of the turning of the parts at a different angle when desired, or the improvement can be used in place of an L-joint, the expansion being taken up perfectly, or it will admit of a perpendicular line of pipe being run from a horizontal line, or vice versa.

G is the expansion-tube. It is disposed within the main part A and is provided with a port or opening *g*. It is shown as provided at one end (both ends extending through the

main part) with a cap H, screwed thereon, and upon the other end with a flange end I, also screwed upon the end of the tube; but it is evident that the flange end may be upon the other end of the tube or that there may be a flange upon each end, as occasion may require. The flange end is designed for pipe connection, being drawn out until the port *g* reaches the shoulder *a*³. The tube in expanding forces the tube inward toward the opposite shoulder a distance regulated by the size of the expansion-joint and number of feet of pipe attached. The packing and glands in the stuffing-boxes provide steam-tight joints which make the ends of the expansion-joint steam-tight.

In Fig. 3 I have shown the double expansion steam-joint as constructed for straight-line work. Fig. 4 is a longitudinal section of one portion thereof. In this form the flange *a'* and passage *A'* are not present; but otherwise the construction is substantially the same. The expansion-tube G is provided at its outer end with the flange end J for pipe connection, and the tube is constructed in two parts G and G', connected by a suitable coupling K, and the pipe ends G². These pipe ends correspond to the horizontal portion of the main part A in the form shown in Fig. 1 and are provided with the shoulders *k*, similar to the shoulders *a*³, between which and the tubular part L is disposed the packing B, the tubular part in this instance being a ring independent of the nut M instead of integral with it, as in the form shown in Fig. 1, and the nut being screwed upon the end of the pipe instead of being in the form of a flange, as in Fig. 1, the result and operation, however, being substantially the same. The

inner ends of the expansion-tubes are provided with the annular shoulders *g'*, as seen in Figs. 3 and 4.

The operation is substantially the same as that of the form shown in Fig. 1. The tube is drawn out until the shoulder *g'* strikes the shoulder *k*, when it is ready for pipe connection. The ring and packing form a steam-tight joint around the tube G.

It is evident that the above-described construction may be employed for a single joint by simply screwing upon the threaded end *m* of the tube G a coupling or cap made for the purpose in lieu of the coupling and other pipe G shown in Fig. 3.

Modifications in detail may be resorted to without departing from the spirit of the invention or sacrificing any of its advantages.

What I claim as new is—

The combination of two inversely-arranged like parts, each embodying an outer portion with interior shoulder near the end, and a central portion at right angles to its length formed with a flange, means securing the two flanges together and permitting communication between the interior of the two parts, an expansion-tube in each of the said parts, each tube having a port, means at the ends of the said tubes for pipe connection, and packing at opposite ends of the outer parts confined between shoulders on the inner wall of the other part and tubular portions around the expansion-tubes, all substantially as shown and described.

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