(No Model.)

G. A. KARWIESE.

EXPANSION FLANGE CONNECTION.

No. 332,906. Patented Dec. 22, 1885.

Fig. 1.

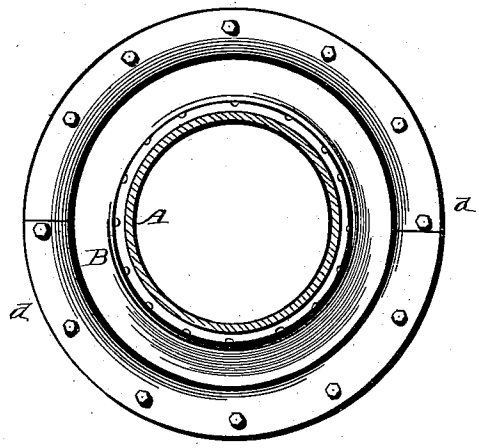
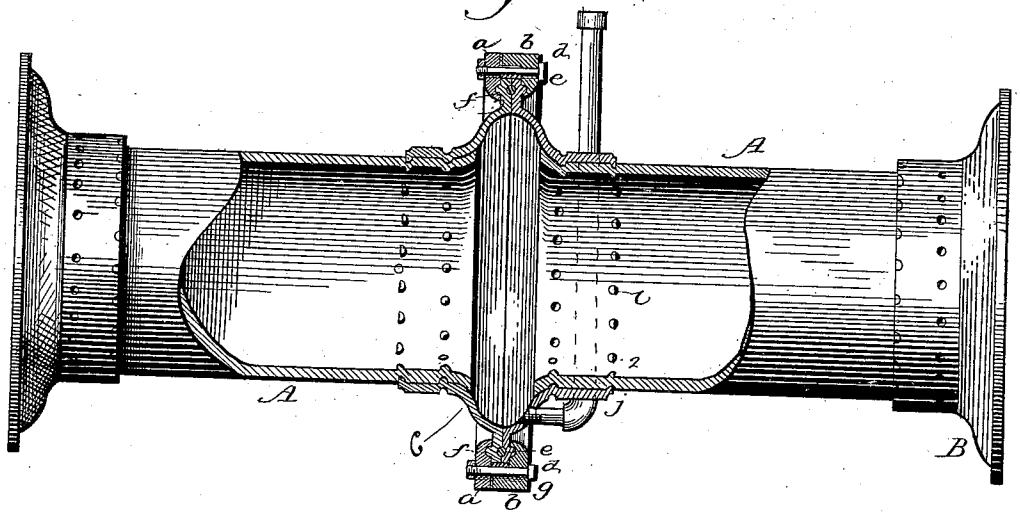


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

GUSTAVUS A. KARWIESE, OF NEW YORK, N. Y.

EXPANSION-FLANGE CONNECTION.

SPECIFICATION forming part of Letters Patent No. 332,906, dated December 22, 1885.

Application filed March 2, 1885. Serial No. 157,453. (No model.)

To all whom it may concern:

Be it known that I, GUSTAVUS A. KARWIESE, of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Expansion-Flange Connections; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention has relation to a new and improved method of joining and securing together sections of tubes, pipes, gas and water mains, underground conduits for electrical and telegraphic conductors, and the like, and is equally applicable to either under or over ground uses, submerged or otherwise.

Heretofore great difficulty has been experienced in making pipe-connections and keeping them tight, particularly where there is constant changing of temperatures—for instance, such as steam and hot-water distribution; where the temperature is constantly changing, the sections of pipes often contract and expand to such a degree that the joints are forced asunder. Then leakage and the tearing up of the streets follow, which is not only very expensive, but very annoying to manufacturers and steam and gas users generally.

To overcome these and other defects is the object of my invention.

To this end my invention consists in providing each end of a pipe with a semi-cylindrical corrugated flange flaring outwardly and forwardly from the end of said pipe or pipes in such a manner as to register with the end of a corresponding pipe, between which a tight joint is made; but it will be understood that these joints are flush with each other—that is to say, that neither extends into the other—so that when it is desired to remove either of them it is only necessary to unfasten the coupling and raise the section straight up. When these flanges are secured together, they make an expansion-joint which yields to the expansion and contraction of the pipe-sections.

The invention further consists in the peculiar manner of packing the joints to make them tight and joining them together, as well as the manner of shrinking and securing the flange-joint to the end of the pipe-section without bolts or rivets, and in other details of construction, as will be more fully hereinafter described.

In referring more particularly to the accompanying drawings and to the letters of reference marked thereon, Figure 1 represents an end elevation of my expansion-joint; Fig. 2, a sectional view, partly in elevation, clearly showing the construction of the expansion-flange and packing, and an external view of the end of section of pipe, showing the indentations in the metal by the hydraulic shrinking process by which the joint is secured to the pipe. These indentations are also shown as the inside of the pipe in section.

A is the pipe, and B one section of the expansion-flange. C is the clamping device, made of two or more sections, *a b*, having lap-joints with a "draw" for tightening the parts. *e* is the copper or other metallic packing, which rests in grooves formed in the face of the flange-sections; and *d*, the soft-metal packing above the joints and beneath the tie-bolts. The exterior circumference of the flanges has outward projections *f* from their outward faces, like that of a bead formed by making the grooves for the metallic packing, around which the clamping device is gripped, and which retains them in position.

When all the parts are together, the tie-bolts *g* are inserted and screwed up, making a secure and tight structure.

The manner of securing the flanges B to the pipes A is as follows: I first slip the section B on the end of the pipe A. I then insert an expanding-tool into the end of the tube, and it expands the end outwardly. I then put said end of the pipe-section with the flange on into a hydraulic press, first properly arranging the male and female dies, and then bring the said hydraulic pressure to bear, forming the indentations, thus making the fastening, as shown by the indentations *i j*.

The dies and method of fastening will form the subject-matter of a separate application.

When extra large mains are required, the flexible flanges may be made in sections and united by any well-known means.

A blow-off pipe is provided for each connection, to clean it out in case of necessity.

It is obvious that modifications may be made of the connection without departing from the spirit of my invention.

Having thus described my invention and the best means known to me for carrying the same into effect, what I claim, and desire to secure by Letters Patent, is—

1. An expansion-joint consisting of two flanges, each of which is corrugated, and provided with a flange extending outwardly from said corrugation, said flange having an outward projection for fastening and an inner groove for packing, substantially as described.

2. The combination in an expansion-joint composed of two or more sections, each having a corrugated flange, and clamping devices having lap-joints, as shown, each of said corrugated flanges having a short section of pipe integral therewith and secured to the pipe-section, as shown and described.

3. The combination, in an expansion-joint composed of two sections, as shown, of the lap-joint-clamping device, the packing *c*, and soft-metal packing *d*, with the pipe A and blow-off pipe, arranged in the manner and for the purpose set forth.

4. In an expansion-flange connection of the character described, the combination of the sections of pipe, the flexible flange-connections, and the blow-off pipe, (in the lower portion of the groove or trough formed by the flange-connection,) which facilitates the removal of accumulated sediment, substantially as set forth, and for the purpose explained.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GUSTAVUS A. KARWIESE.

Witnesses:
J. FRANK WHITE,
O. E. DUFFY.