No. 765,484. PATENTED JULY 19, 1904.

L. HOCHSTEIN.

COMPENSATING PIPE JOINT.

APPLICATION FILED JULY 31, 1903.

NO MODEL. 2 SHEETS—SHEET 1.

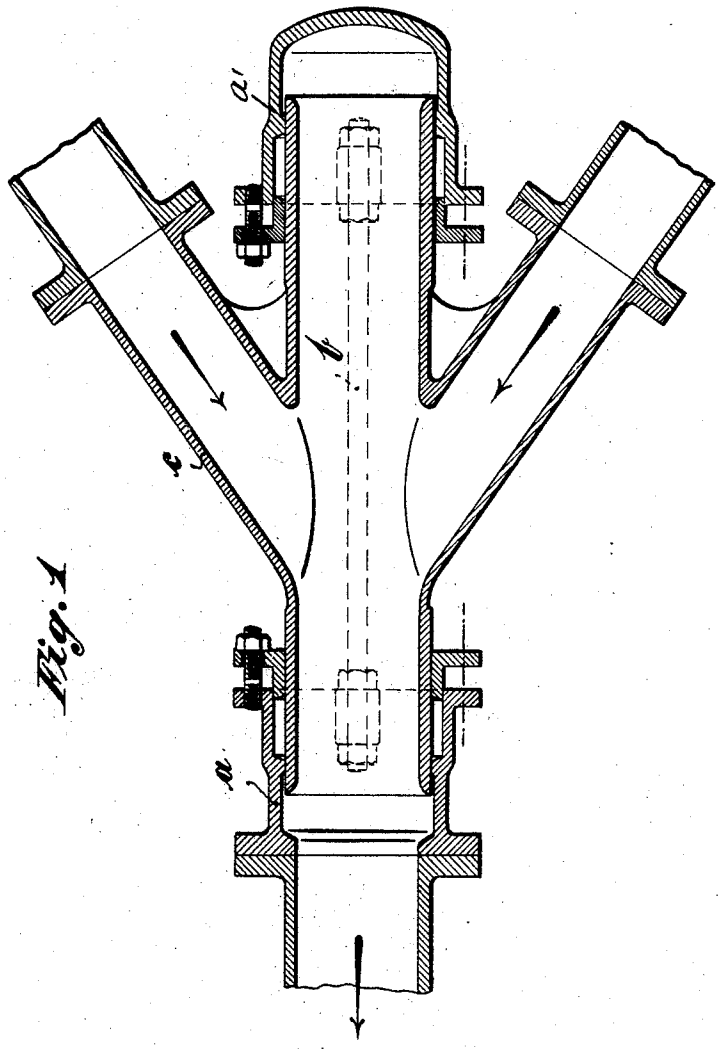


Fig. 1.

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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3

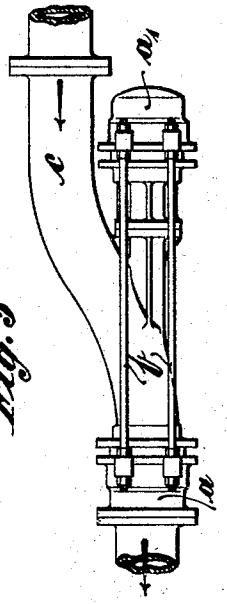


Fig. 5

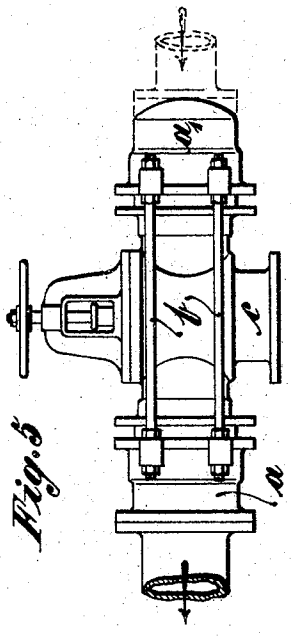


Fig. 4

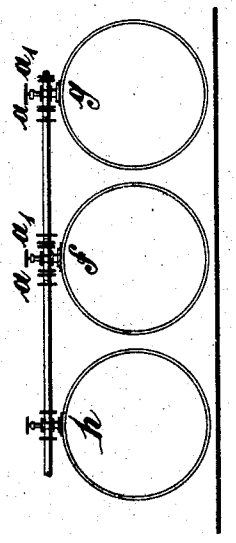


Fig. 2

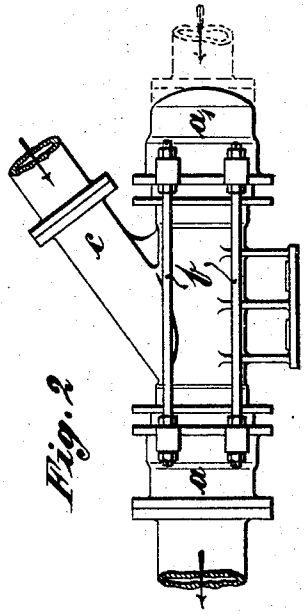


Fig. 1

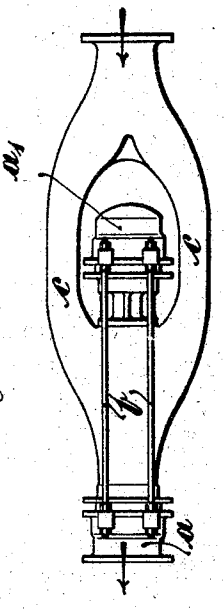
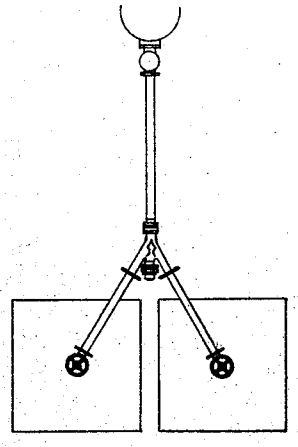


Fig. 6



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No. 765,484. Patented July 19, 1904.

UNITED STATES PATENT OFFICE.

LUDWIG HOCHSTEIN, OF DIETRICHSDORF, NEAR KIEL, GERMANY.

COMPENSATING PIPE-JOINT.

SPECIFICATION forming part of Letters Patent No. 765,484, dated July 19, 1904.

Application filed July 31, 1903. Serial No. 167,706. (No model.)

To all whom it may concern:

Be it known that I, LUDWIG HOCHSTEIN, a subject of the Emperor of Germany, residing at Dietrichsdorf, near Kiel, in the Empire of Germany, have invented certain new and useful Improvements in Compensating Pipe-Joints, of which the following is a full, clear, and exact description.

This invention relates to that class of balanced compensation devices for pipe-conduits in which the balance is obtained by the use of two stuffing-boxes situated at either end of the compensating pipe; and the object of the invention is to dispense with the slotted compensation-pipe now in use, as well as the casing which forms a water-space about the same. At the same time it is intended to prevent the eddying of the steam, water, or air which occurs in the circular casing, as by the present invention the steam, &c., is given an impetus which is directly in line with the new direction to be given to the stream.

A further object of the present invention is to provide a device which shall be simple in construction, durable in use, and of which the parts are always accessible for inspection and repairs.

With these and other objects and advantages in view my invention consists in the novel construction and combinations of parts to be hereinafter described, and finally pointed out in the claims.

In the drawings accompanying the specification, in which similar characters of reference designate identical parts throughout the several views, Figure 1 is a horizontal cross-section illustrative of a preferred form of my invention. Fig. 2 is a side elevation of a slightly-different arrangement. Figs. 3 and 4 are elevations of forms of the invention which are intended for approximately rectilinear pipe-conduits. Fig. 5 is an elevation of a modification in which the compensation-pipe takes the form of a valve. Figs. 6 and 7 are a plan and elevation, respectively, of the application of my device in the forms shown in Figs. 1 and 5, respectively.

In the drawings, *c* designates a compensation-pipe, which is secured at either end to suitable stuffing-boxes *a a'*. Intermediate of these stuffing-boxes the branch pipes of the compensation-pipe are arranged inclined in the direction of the entering fluid. The two stuffing-boxes, which are of equal diameter, are connected by ties *b* for the purpose of relieving the pressure on the pipe, said ties comprising bolts secured between suitable perforated collars on said stuffing-boxes. For taking up the expansion it is immaterial whether the compensation-pipe moves in the fixed stuffing-boxes or the stuffing-boxes connected by the ties slide over the fixed compensation-pipe, as shown in Fig. 2. In some cases it is preferable to have the compensation-pipe and the two stuffing-boxes connected by the ties move simultaneously with relation to one another, as shown in Figs. 2 and 4.

In Fig. 2 the compensation-pipe is provided with a collar—that is to say, it is fixed—while the two stuffing-boxes *a a'* slide over the same. The stuffing-box *a'* may be extended in the form of a closed pipe.

As shown in Figs. 3 and 4, the compensation-pipe *c* and the stuffing-boxes *a a'* are movable in their relation to each other.

In some cases a valve is placed in the compensation-pipe *c*, as shown in Fig. 5.

As has been stated, Fig. 6 shows the application of the form shown in Fig. 1, the fluid being distributed equally between two receivers. In Fig. 7 is shown the application of the device disclosed in Fig. 5. In this case the stuffing-box *a'* acts as a valve *f*. The part of the stuffing-box *a'* extended as a pipe-conduit is, on the other hand, closed near the valve *g*. The fixed point of the pipe-conduit is near the valve *h*. The valves *f g h* are directly attached to the boilers, as shown.

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

1. In a compensation device for pipe-conduits, the combination with two stuffing-boxes connected with each other, of a free-lying pipe fitting in the said boxes and open at both ends, and means for leading and carrying off the fluid into and out said pipe, substantially as and for the purpose described.

2. In a compensation device for pipe-conduits, the combination with two stuffing-boxes arranged in line and connected with each

other, a pipe fitting in the said boxes, and open at both ends, and conduit-pipes in communication with said pipe, said two boxes being connected with said conduit-pipes, substantially as and for the purpose described.

3. In a compensation device for pipe-conduits, the combination with two stuffing-boxes connected with cach other, a fixed pipe fitting in the said boxes and open at both ends, and conduit-pipes in communication with said pipe, said two boxes being connected with and movable on said conduit-pipes, substantially as and for the purpose described.

4. In a compensation device for pipe-conduits the combination with two stuffing-boxes connected with each other of a valve-casing forming a fixed pipe fitting in the said boxes and open at both ends and conduit-pipes in communication with said fixed pipe, the two boxes being connected with conduit-pipes substantially as and for the purpose described.

5. In a compensation device for pipe-conduits, the combination with two stuffing-boxes connected with each other of a pipe fitting in the said boxes open at both ends, and provided with pipes branching off from the same substantially as and for the purpose described.

In witness whereof I have hereunto set my hand in the presence of two subscribing witnesses.

LUDWIG HOCHSTEIN.

Witnesses:

JULIUS RÖPKE,

C. TODE.