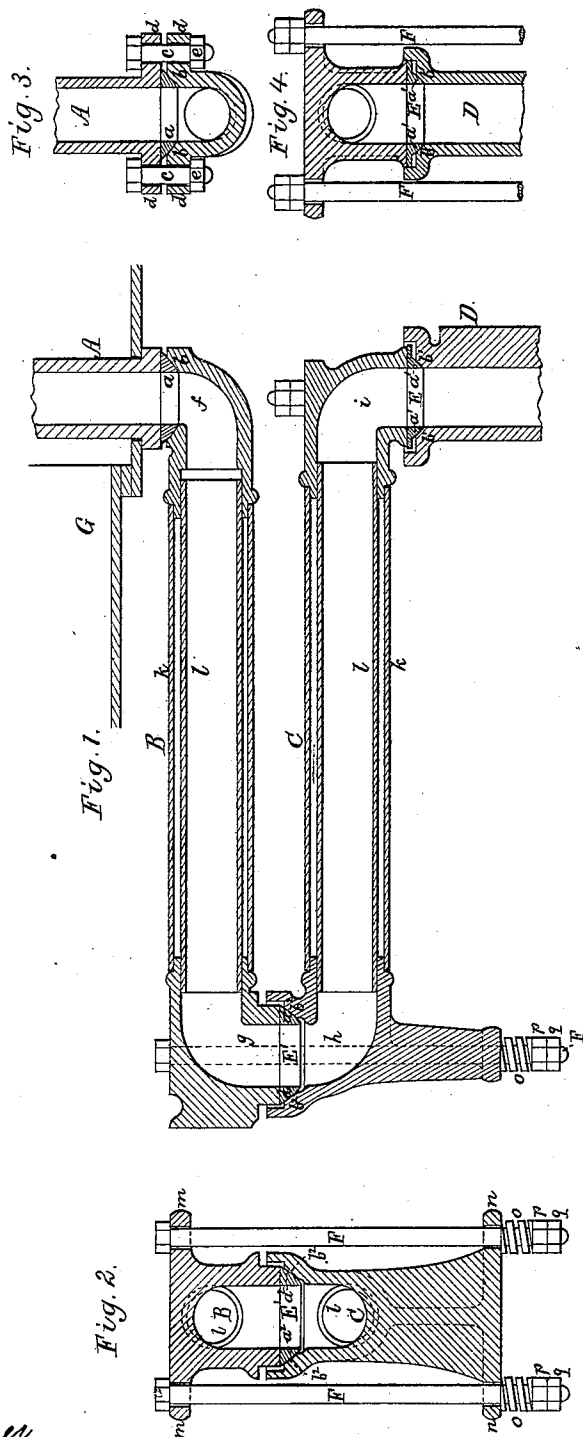


(No Model.)

W. MASON.
Induction Pipes for Bogie Locomotives.
No. 242,464. Patented June 7, 1881.



Witnesses.

S. N. Piper.

E. D. Pratt.

Inventor.

William Mason

by R. H. Emy atty.

UNITED STATES PATENT OFFICE.

WILLIAM MASON, OF TAUNTON, MASSACHUSETTS.

INDUCTION-PIPE FOR BOGIE-LOCOMOTIVES.

SPECIFICATION forming part of Letters Patent No. 242,464, dated June 7, 1881.

Application filed April 2, 1881. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM MASON, of Taunton, of the county of Bristol and State of Massachusetts, have invented a new and useful Improvement in the Steam-Induction Pipes for so-called "Bogie Locomotive-Engines;" and I do hereby declare the same to be described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is a vertical section, and Figs. 2, 3, and 4 are transverse sections, of an induction-pipe provided with my invention, the nature of which is duly defined by the claims hereinafter presented.

My said improved induction-pipe is to lead steam from the boiler to the valve-chests of the cylinders. Owing to the cylinders of a bogie-locomotive being supported by a movable truck capable of oscillating, so as to readily adapt itself to the curves and undulations of the railway, it becomes necessary to have the steam-conduit not only flexible to admit of such movements of the truck, but capable of expanding or contracting lengthwise without injury to it (the said conduit) or causing escape of steam from its joints.

In the drawings the induction-conduit is shown as constructed in four sections, A B C D, arranged and formed as represented, the upper section, A, being permanently fixed to the boiler G and to open therefrom, so as to lead the steam from it into the section B, which is arranged horizontally, the two sections at their contiguous ends being adapted to each other by a spheric-segmental joint (shown at *a b*) and connected by screw-bolts *c c*, furnished with nuts *e e*, and going through flanges *d d*, extending from the sections, all being as shown in Fig. 3.

The lower of the two sections C D communicates with the valve-chests of the engine-cylinders and moves with them, and is applied to the next or lower of the two horizontal or intermediate sections B C by a spheric-segmental joint, as shown at *a' b'*, the convexity of which is formed upon an annulus, E, arranged between the sections C and D and separate from each, but having a flat top surface upon which the adjacent elbow of the section C rests with a ground or steam-tight joint.

The two sections C and D are connected to-

gether by bolts F, of suitable length, (see Fig. 4,) going with sufficient looseness through flanges from the sections, and provided with springs and nuts, all being substantially as represented in Fig. 2 and hereinafter more particularly described.

Each of the intermediate sections B and C is provided with elbows, or turns up at one end and down at the other, in manner as represented at *f g* and *h i* in Fig. 1, the said elbows of each section being connected by and arranged, as represented, with two concentric intermediate tubes, *k l*.

The next adjacent elbows, *g h*, of the two intermediate sections B and C are adapted to each other by a spheric-segmental joint, as shown at *a² b²*, and they are held in connection by two long screw-bolts, F F, (see Figs. 1 and 2,) going down through flanges *m m n n*, projecting from the elbows in manner as shown in Fig. 2, the said bolts being outside of the bores of the two elbows. Each of such bolts extends through a helical spring, *o*, and is provided with two nuts, *p q*, all being arranged as represented.

It may be further stated that between the two next adjacent elbows of the sections B and C is a separate annulus, E', like the annulus E, hereinbefore described, such annulus E' having the convexity of the joint formed upon it, and, besides, being flat on its top for the contiguous flat end of the elbow to rest on with a ground joint. This annulus admits of the slight longitudinal movement of either section relatively to the other, as it may be expanded or contracted by heat or otherwise moved.

From the above it will be seen that by having the intermediate or horizontal sections of the conduit or their elbows adapted to each other by a spheric-segmental joint and connected by bolts provided with springs, as described, the joint is not only kept tight thereby, but the lower section is free to turn or move more or less, as occasion may require, relatively to the upper section, the joint being maintained steam-tight in the meantime. The same may be said with respect to the sections C and D. The flat annuli of the joints and contiguous sections admit of lengthwise expansion or contraction of the horizontal sections relatively to each other or to the vertical sections, such expan-

sion or contraction being due to variations of temperature of the sections.

I am aware that a pendent and vibrating pipe has been attached to the tube-sheet of a locomotive-engine boiler by an elbow-joint, and to the steam chest or chests of the cylinders by a tube terminating in a ball-and-socket joint, the vibrating pipe being introduced longitudinally within the said tube and applied thereto by a stuffing-box, all being as shown in the United States Patent No. 119,591. My invention differs therefrom, as I have connecting bolts and springs to the two tubular sections of the steam-induction conduit, and adapted such to each other by a spheric-segmental joint, which admits of sliding and turning movements of the sections not attainable by any mechanism described or represented in such patent.

What I claim in the steam-induction pipe of

a locomotive-engine as my invention is as follows, viz:

1. The connecting-bolts and the springs applied to them as set forth, in combination with two next adjacent sections of the steam-pipe, adapted to each other by a spheric-segmental joint, all being constructed and arranged substantially as specified.

2. The combination of the separate annulus, convex and flat, as described, with the two pipe-sections or elbows thereof adapted to such annulus, as explained, and held together and to it by bolts and springs, all being constructed and arranged substantially as set forth.

WM. MASON.

Witnesses:

R. H. EDDY,
E. B. PRATT.