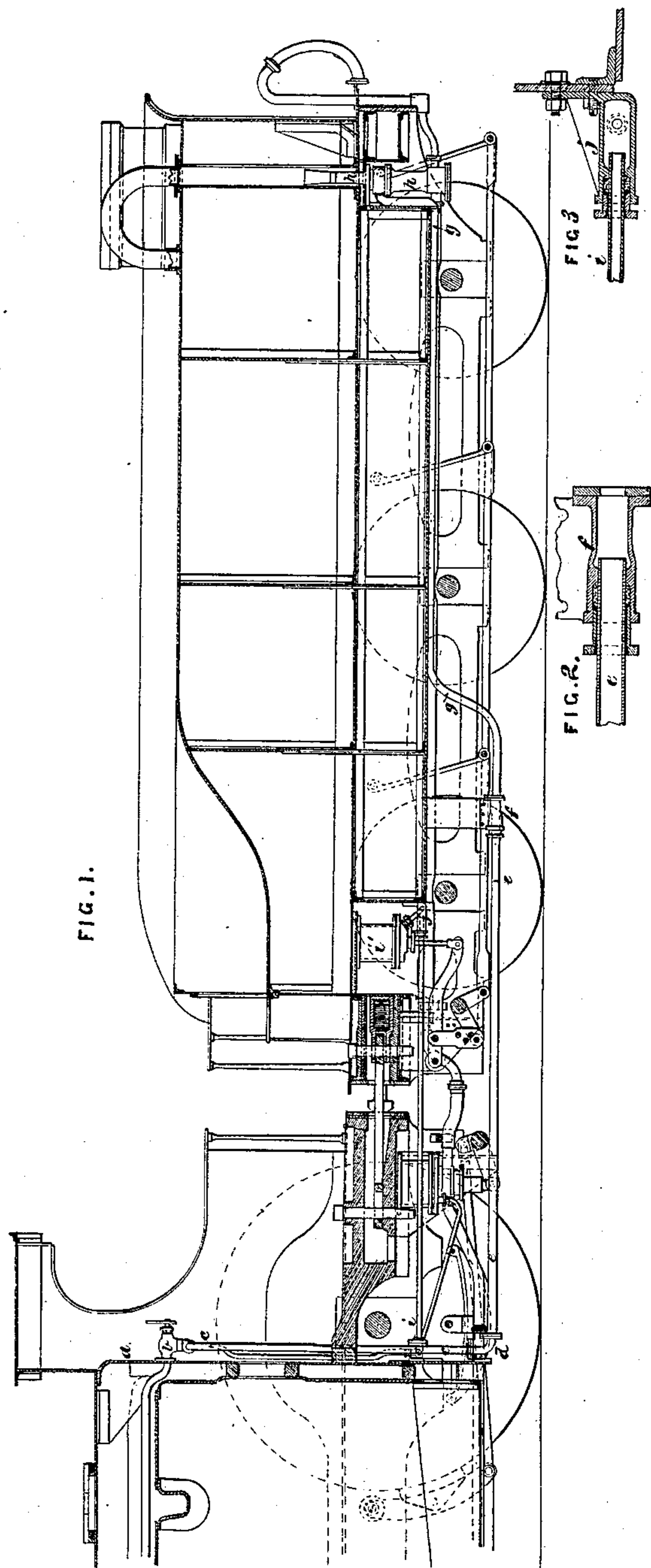


(No Model.)

F. HOLT.  
PIPE CONNECTION.

No. 251,441.

Patented Dec. 27, 1881.



WITNESSES:  
*Edward G. Siggers*  
*Robert Everett*

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# UNITED STATES PATENT OFFICE.

FRANCIS HOLT, OF DERBY, ENGLAND.

## PIPE-CONNECTION.

SPECIFICATION forming part of Letters Patent No. 251,441, dated December 27, 1881.

Application filed August 6, 1881. (No model.) Patented in England June 11, 1878.

*To all whom it may concern:*

Be it known that I, FRANCIS HOLT, of Derby, England, engineer, have invented a new and useful water, steam, and air pipe connection between locomotive-engines and tenders or carriages, (for which I have obtained a patent in Great Britain, No. 2,322, bearing date June 11, 1878,) of which the following is a specification.

10 My invention relates to pipe-connections for locomotives and for other purposes; and it consists in the construction and combination of parts hereinafter set forth.

15 In order that my invention may be readily understood, I will proceed to describe the accompanying drawings, reference being had to the figures and letters marked thereon.

20 On Sheet 1, Figure 1 is an elevation of part of a locomotive steam-engine, with its tender, to which my improvements are applied; and Fig. 2 is a plan of the same in section.

25 *a* is the front plate of the fire-box of the engine, to which is fixed the valve-box *b*, connected by the pipe *c* to the elbow-bracket *d*, to which one end of the brass, steel, or other metal tube *e* is attached. The other end of this tube passes through the packed gland of an ordinary stuffing-box, *f*, fixed to the tender, and this stuffing-box, which is shown on an enlarged scale in Fig. 2, is connected by the pipe *g* to the usual vacuum-brake ejector, *h*, which is placed at the end of the tender near the carriages.

The tube *e* must be of such a length as will

35 give the flexibility required in passing through curves of a minimum radius, and the stuffing-box must be sufficiently long to allow for the telescopic motion of the tube when the engine and tender are shunting or in a collision. This tube *e* and the stuffing-box *f*, in which one end 40 works, are to be used in lieu of the ordinary ball-and-socket pipes, or hose-pipes, or metal coils now in general use for conveying steam from the engine to the vacuum-brake ejector on the tender, the tube *e* giving absolute security for working the ejector. 45

In Fig. 1 I have also shown how my improvements are applied to working the brakes by a steam-cylinder on the tender. The tube *i* is connected at one end to the boiler of the locomotive-engine, and the other end passes through 50 the gland of the stuffing-box *j*, (shown also in Fig. 3,) which is in communication with the steam-cylinder *i'*, which is connected to an ordinary apparatus for applying the brakes to 55 the wheels of the tender or carriages.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

In combination with the boiler and tender 60 of a locomotive steam-engine, the valve-box *b*, pipe *c*, elbow-bracket *d*, metal tube *e*, and stuffing box *f*, substantially as set forth.

FRANCIS HOLT.

Witnesses:

CHAS. A. BARLOW,  
HERBERT R. ABBEY.