

(No Model.)

W. AMOS.
COUPLING JOINT.

No. 420,220.

Patented Jan. 28, 1890.

Fig. 1.

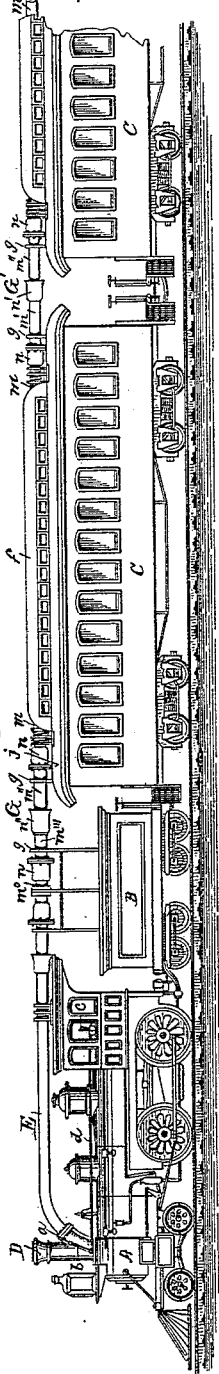


Fig. 2.

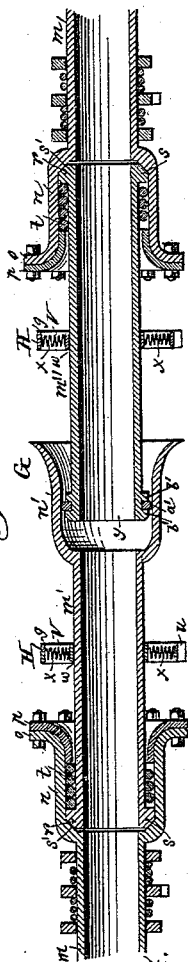


Fig. 4.

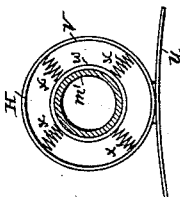
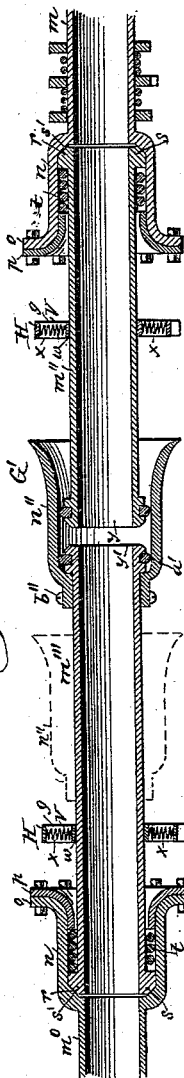


Fig. 3.



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UNITED STATES PATENT OFFICE.

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COUPLING-JOINT.

SPECIFICATION forming part of Letters Patent No. 420,220, dated January 28, 1890.

Application filed April 13, 1889. Serial No. 307,174. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM AMOS, a citizen of the United States, residing at Providence, in the State of Rhode Island, have invented a new and useful Improvement in Coupling-Joints for the Heating and Conveying Pipes of Railroad-Cars, of which the following is a specification.

The great danger of fire and consequent loss of life in the case of a railroad accident makes it desirable to provide a substitute for the car-heating stoves heretofore employed, and it is also desirable to be able to prevent the sparks from flying into the cars through the open doors or windows; and it is the object of my invention to provide a suitable coupling-joint for the pipes employed to convey the exhaust-steam and products of combustion through the cars of the train for heating purposes; and my invention consists in the improved construction of the coupling-joint of the pipe, as hereinafter fully set forth.

Figure 1 represents an elevation of a locomotive and train of cars provided with my improvement. Fig. 2 is a longitudinal section of the coupling-joint in the heating and conveying pipe between the passenger-cars. Fig. 3 is a longitudinal section of the coupling-joint between the forward car and the tender of the locomotive. Fig. 4 represents a transverse section of a coupling-pipe and an elevation of the spring-guide for supporting the same.

In the accompanying drawings, A is the locomotive, B the tender, and C C the passenger-cars of the train.

To the base of the smoke-stack D of the locomotive is attached the heating and conveying pipe E, which passes rearward over the tender, thence over the main roof *j* of the first car C, and under the monitor-roof *f* of the same, thus reaching the interior of the car for heating purposes.

The exhaust-steam and the products of combustion from the furnace of the locomotive-boiler can be made to pass either directly into the atmosphere through the smoke-stack D, or rearward through the heating and conveying pipe E, by means of a valve, the said valve being attached to the rock-shaft *a*, to the outer end of which is secured the arm *b*,

which is connected to the hand-lever *c* in the cab of the locomotive by means of the rod *d*, so that the engineer by moving the hand-lever *c* can direct the exhaust-steam and heated products of combustion, as desired, either wholly through either the heating and conveying pipe E or the smoke-stack D, or partially through both. The engineer can thus control the amount of exhaust-steam and products of combustion to be delivered to the pipe E for car-heating purposes.

The pipe-sections *m*, which extend over the top of the cars C, are provided with a coupling-joint G at the connected ends of the cars C C, the construction of the said joint being shown in the enlarged longitudinal section, Fig. 3. The pipe-section *m* extends under the monitor-roof *f* of the car, and is loosely held at its ends by means of the annular guides *g g*, which fit around the said pipe and are attached to the main roof *j*.

The ends of the pipe-section *m*, which extends from end to end of the car C, are provided with the enlargements *n*, having a flange *o*, to which is secured the flanged ring *p*, and within the hollow of the enlargement *n* at one end of the pipe-section *m* of each car is placed the end *r* of the coupling-section pipe *m'*, the said end *r* being provided with an annular collar or flange *s*, of rounded or beveled form, to fit a corresponding rounded or beveled annular seat *s'* at the base of the enlargement *n*, and between the flange or collar *s* and the flanged ring *p* is placed the spiral spring *t*, which serves to keep the joint between the coupling-pipe *m'* and the pipe *m* properly tight.

Upon the main roof *j* of the car is secured the pipe-holding guide H, which is shown in enlarged front view in Fig. 4, the said guide consisting of a fixed ring V, secured to the roof of the car by means of its attaching-base *u*, the movable ring *w*, adapted to receive and surround the coupling-pipe, and the opposite spiral springs *x x x x*, arranged at right angles to each other, so as to preserve the ring *w* and the inclosed coupling-pipe *m'* in a central position within the ring V. The coupling-pipe *m'* is provided with a bell-shaped enlargement *n'*, which is adapted to receive the forward end *y* of the coupling-pipe *m''* of the opposite car C and to allow a limited endwise movement therein, the said

forward end y being provided with an annular elastic packing-ring a' , of suitable material, which is held between the rings $b' b'$, thus forming a tight movable joint. The coupling-pipe m'' is attached to the pipe-section m of the car to which it belongs, and is supported in the same manner as the opposite coupling-pipe m' , hereinbefore described, and the cars are each provided at one end with a coupling-pipe m' and at the opposite end with a coupling-pipe m'' , whereby when the cars are brought together on the track the coupling-joint of the pipes $m' m''$ will be readily formed, it being only required that the cars should be arranged with their proper ends adjacent to each other without reversal upon the track.

In order to provide for coupling the locomotive and tender to either end of the car or train of cars, as desired, I provide a modified coupling-joint G' between the tender B and the forward car C , the said joint being shown enlarged in the longitudinal section, Fig. 3, the tender B being provided with the fixed pipe m'' and a coupling-pipe m''' , upon which is placed the movable sleeve n'' , which, when moved forward and secured in position by means of the screws b'' or otherwise, will serve to form the bell-shaped enlargement to receive the forward end y of the coupling-pipe m'' of the forward car C ; but when the coupling is to be made with the enlarged end of the pipe m' at the other end of the car the sleeve n'' is to be drawn back, as shown by the dotted lines, Fig. 3, and then the end y' of the coupling-pipe m''' , which is provided with a packing-ring a' , will properly enter the enlarged end of the coupling-pipe m' of the car C to form the joint.

I claim as my invention—

1. The combination, with the main heating or conveying pipe extending lengthwise of a railroad-car and having enlarged ends, of the coupling-pipe held within the enlarged end of the main pipe, which also forms a seat for the end of the coupling-pipe, the spring ar-

ranged upon the coupling-pipe and adapted to hold the same to its seat, and the spring-holder adapted to hold the spring within the main pipe and to form a joint, substantially as described.

2. The combination, with the main heating or conveying pipe extending lengthwise of a railroad-car and having enlarged ends, of the coupling-pipe held within the enlarged end of the main pipe, which also forms a seat for the end of the coupling-pipe, the spring arranged upon the coupling-pipe and adapted to hold the same to its seat, the spring-holder adapted to hold the spring within the main pipe and form a joint, and the spring-guide for supporting the outer end of the coupling-pipe, substantially as described.

3. The combination, with the coupling-pipe provided with an exterior packing-ring and jointed to a main conducting-pipe, of the spring-guide for supporting the outer end of the coupling-pipe, and the sliding bell-shaped sleeve arranged upon the coupling-pipe, whereby the said pipe is adapted to form a coupling-joint at either end of a car, substantially as described.

4. The combination, with the main heating or conveying pipe of a railroad-car, of a female coupling-pipe provided with an enlarged end and jointed to one end of the main pipe by means of the spring and spring-holder, the spring-guide for supporting the outer end of the said coupling-pipe, a male coupling-pipe jointed to the opposite end of the main pipe by means of the spring and spring-holder, and the spring-guide for supporting the said coupling-pipe in proper position for coupling with the correspondingly jointed and supported female coupling-pipe of another car of the train, substantially as described.

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Witnesses:

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