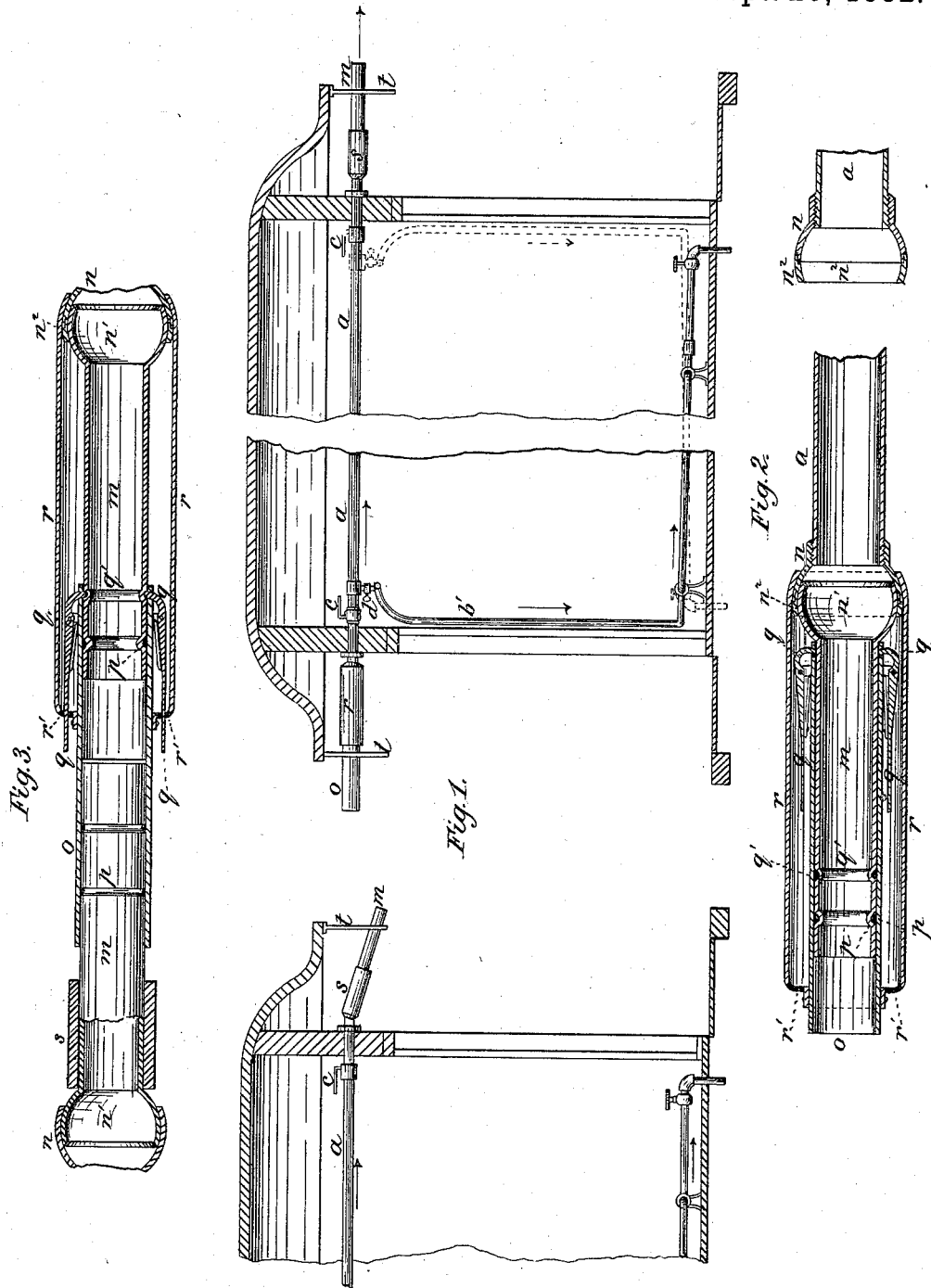


(No Model.)

W. H. WARD.
PIPE COUPLING.

No. 264,914.

Patented Sept. 26, 1882.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM H. WARD, OF PITTSBURG, PENNSYLVANIA.

PIPE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 264,914, dated September 26, 1882.

Application filed March 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. WARD, a citizen of the United States, residing at Pittsburg, county of Allegheny, and State of Pennsylvania, have invented new and useful Improvements in Pipe-Couplings for Car-Heaters, of which the following is a specification.

My invention relates to couplings specially adapted for coupling steam-supply pipes for warming railway-cars in which the supply-pipes are arranged at the top of the cars and connect with a system of warming-pipes arranged within each car, as shown and described in an application for a patent filed by me January 19, 1881, for means for warming railway-cars by steam. The coupling consists of joint-sections supported and maintained in line with their free ends separated by means of an enveloping sleeve or tube carried by and movable upon one section to envelop and support the separated ends of the two sections, the object being to render the coupling practically steam-tight, to allow the joint-sections to be coupled after the cars have been coupled, and to maintain the coupling in straight lines with the supply-pipes to prevent the collection of water caused by condensation, so that the flow of the steam will be uninterrupted.

Referring to the accompanying drawings, Figure 1 represents a vertical section of a portion of two car-bodies, showing the supply-pipes in uncoupled position. Fig. 2 is an enlarged sectional view of the coupling parts connected with and carried upon one end of the supply-pipe; and Fig. 3, a similar section, showing the coupling ends of the supply-pipes of two cars in coupled positions.

Each car is provided with one or more steam-supply pipes, *a*, preferably arranged along the upper part of the car, of suitable capacity, and extending sufficiently beyond the ends of the car to allow them to be properly coupled. The supply-pipes are connected between the cars by stiff couplings, which give freedom for the vibrations of the cars, and which differ in important points from telescopic couplings.

My improved coupling is made stiff, for the purpose of avoiding sag-bends and the collection of water from condensation therein when the cars are coupled, which would interrupt the flow of the steam. It consists of two sepa-

rate pipe-sections, *m m*, which are jointed to the ends of the supply-pipes *a* by sections of hollow hemispheres, known as "ball-joint pipe-coupling," one of which, *n*, is screwed upon the end of the supply-pipe, and the other, *n'*, is formed with the pipe-section *m*, and is adapted to fit within the section *n* with a ground or packed joint, and when so fitted is confined by a screw-section, *n²*, which forms an extension of the fixed screw-section *n*, within which the pipe-section *m* has a universal-joint play to accommodate the vibrations of the cars. The pipe-sections *m*, thus connected, do not telescope with each other, nor complete the coupling, but are of a length less a few inches than the distances between the ends of the supply-pipes, so that the pipe-sections always stand separated at their free ends when the cars are coupled in train. To support and envelop these separated ends of the pipe-sections *m m*, I employ a sleeve, *o*, fitted upon one of the pipe-sections *m*, upon which it is adapted to be slid back out of the way in coupling the cars, and to be slid out over the separated ends of the joint-sections *m m* when the cars are coupled. This sleeve has a suitably-packed joining with its supporting joint-sections *m*, and with the other section *m*, when serving its supporting and enveloping function, and such packing may be placed in circumferential grooves, as shown at *p* in Figs. 2 and 3. The sleeve *o* is provided at one end with spring-catches *q q*, adapted to enter holes in the sleeve, and a circumferential groove, *q'*, in the joint-section *m*, by which to hold the sleeve in position longitudinally when covering the separated ends of said pipe-sections *m m* and supporting them, as shown in Fig. 3. These spring-catches I prefer should be thumb-levers arranged so as to release their retaining end when the sleeve is to be shoved back over its supporting-section in uncoupled position, as shown in Fig. 2. A jacket, *r*, fixed to and extending from the ends of the fixed joint-coupling *n*, serves as a cover for the sleeve-supporting section *m* when the coupling is made. The other joint-section *m* may be protected by a non-conducting covering, *s*, up to the point at which the sleeve covers it when coupled. The other end of this jacket *r* is turned inward to join the sleeve *o*, and at this turn there are openings

r' to allow the thumb-levers q to pass out with the sleeve in enveloping the joint-sections m , and thus expose the thumb-levers for releasing their lock, as shown in Fig. 3. These joint-sections $m m$, when uncoupled, are supported by depending links or straps t from straining their joints.

Each end of each supply-pipe of the car is provided with a suitable cock or valve, c , by which to close the supply-pipe at the end of the train and regulate the flow of steam. It will be understood that when the train is completed and the connections are made the steam-pressure in the supply-pipe will be equal, or nearly so, throughout the train, and that, the cocks of all the warming-pipes being open, the steam will enter them as it passes through supply-pipes and couplings, and thus afford an equal or nearly equal degree of temperature in all the cars of the train.

The sleeve which unites the separated ends of the joint-sections of the supply-pipe couplings is carried by and locked to one of said sections, so that when the coupling is made the said sleeve will have a free movement upon the other joint-section to accommodate the longitudinal play of the cars. The cocks c are arranged near each end of the supply-pipe to stop or regulate the flow of steam; and a branch pipe, b' , serves to connect the supply-pipe with the car-warming pipes in any suitable manner. A cock, d , in the branch pipe b' serves to regulate the heat in the warming-pipes, or cut it off therefrom without stopping the flow through the supply-pipe.

The stiff coupling is especially designed for uniting pipes of a train of cars. Its construction is such that when the cars are coupled and the sleeve which is carried by one of said car-pipes is extended thereon to unite the pipe of the next car it will merely have a supporting function for the joint pipe-sections, and will accommodate the train expansion and

contraction and the side movements of the cars. In such function the said sleeve must have only a fixed connection with one of the joint pipe-sections to allow free longitudinal movement upon the other section.

Instead of the grooved packing-joints for the sleeve o , a packing-ring may be placed on the joint pipe-section, and the sleeve adapted to be slid over such packing-ring in coupling the sections.

I claim—

1. The combination, with the separate fixed supply-pipes $a a$ and the ball-and-socket-joint pipe-sections $m m$, of the sleeve o , carried by one of said pipe-sections and made extensible thereon to envelop and support the other pipe-section after the cars have been coupled, substantially as described.

2. The combination, with the supply-pipes a , of the joint pipe-sections $m m$, the sliding sleeve o , and the fixed jacket r , substantially as described, for the purpose specified.

3. The combination of the separate fixed supply-pipes $a a$, the ball-and-socket-joint pipe-sections $m m$, and the sleeve o , extensible upon one of said pipe-sections, with the catches $q q$, carried by said extensible sleeve, substantially as described, for the purpose specified.

4. In combination, the supply-pipes a , the joint pipe-sections $m m$, the sliding sleeve o , the catches $q q$, and the fixed jacket r , the said sleeve being carried by one of said pipe-sections, and the said jacket being fixed to the supply-pipe and enveloping the said sleeve-carrying pipe-section, substantially as described, for the purpose specified.

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

W. H. WARD.

Witnesses:

A. E. H. JOHNSON,

J. W. HAMILTON JOHNSON.