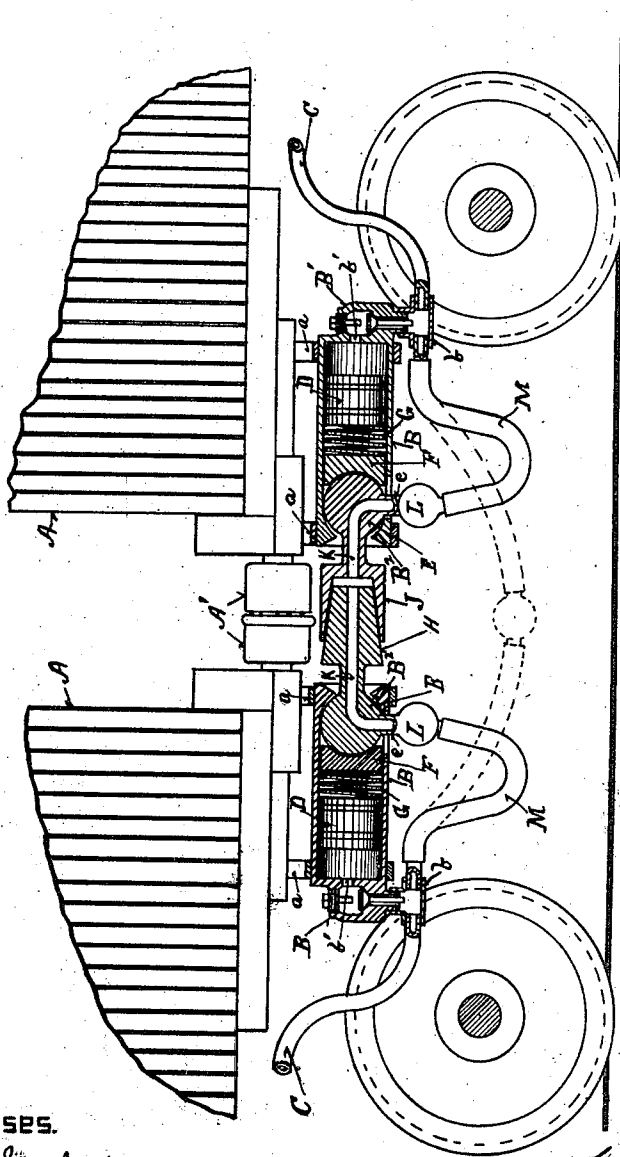


H. S. HARCOURT.
 TRAIN PIPE COUPLING.
 APPLICATION FILED DEC. 28, 1910.

989,352.

Patented Apr. 11, 1911.



Witnesses.

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UNITED STATES PATENT OFFICE.

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TRAIN-PIPE COUPLING.

989,352.

Specification of Letters Patent.

Patented Apr. 11, 1911.

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To all whom it may concern:

Be it known that I, HARRY S. HARCOURT, a citizen of the United States, residing at Erie, in the county of Erie and State of Pennsylvania, have invented certain new and useful Improvements in Train-Pipe Couplings; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, forming part of this specification.

My invention relates to train pipe couplings, and has for its object the provision of a device of this character which will be automatic in its action upon the coupling and uncoupling of trains and of sufficient flexibility to adapt itself to all the sinuosities and inequalities usually found in railways.

The features of my invention are herein-after fully set forth and described and illustrated in the accompanying drawing, in which:

Figure 1 is a side elevation, partially in section of portions of a pair of railway cars provided with my improved pipe coupling device.

In this drawing, A, A, indicates the bodies of two railway cars provided with the usual car couplings A', in the usual manner. Depending from the framework of these car-bodies by means of suitable supports a, a, a, a, are a pair of cylinders, B, B, each having on the rear end thereof a stop-valve mechanism, B', connected by means of a T-connection, b, with the train-pipe, C. Said cylinders are also provided with a communicating port, b', leading to said stop-valve mechanisms B'. Within each cylinder, B, B, there is a piston, D, D. Within the front end of each cylinder, B, B, mounted in semi-spherical sockets, B², B², are a pair of balls, E, E, and back of each ball is a pressure plate, F, F, and between the pressure plate F, and the pistons D, there is a spiral spring, G, G. Extending downwardly from each of said balls, E, E, there is a nipple, e, e, and extending forwardly out of the front end of each of said cylinders are the two members of the automatic pipe-coupling preferably of the male H,

and female, J, type. Extending upwardly through the nipples, e, e, through each of said balls, E, and through the coupling members, H and J, is an air passage, K, K. On each of the nipples, e, e, I preferably place the usual universal train-pipe couplings, L, L, of the type in general use on train-pipe hose couplings. Connected with the T-connections b, b, I place the usual train-pipe hose sections M, M, each having on the free end thereof the usual duplicate coupling members, L, L, which are coupled to the coupling members on the nipples, e, e, but which may be, if desired, coupled together in the usual manner as shown by broken lines in the drawing.

In operation when a railway car is provided with my improved automatic pipe coupling device, as hereinbefore described, when air is supplied to the train-pipe, C, after the coupling members, H, J, are joined as shown in the drawing, it passes through the check-valve mechanism, B', and port, b', into the cylinder, B, behind the piston D, therein and forces the same forward against the tension of the spring, G, which in turn forces the pressure plate, F, and ball, E, forward so as to maintain the coupling members, H and J, as far forward as the position of the two cars, A, A, will permit, thereby maintaining an elastic pressure against said coupling members, H and J, which will prevent them from being drawn apart during the movement of the train. When, however, the cars, A, A, are uncoupled, the air will at once escape out of the train-pipe and set the brakes in the usual manner, but the check-valve mechanism, B', will retain sufficient air in the cylinders, B, B, behind the pistons, D, D, to force the coupling members H and J, to their most extended position. When the coupling members, H and J, are brought together as shown in the drawing it will be seen that the air passage is from the hose sections through the balls, E, E, and coupling members, H and J, but in case it becomes necessary to put into the train a car which is not fitted with my improved device, the hose sections, M, M, can be coupled together in the usual manner.

Having thus fully described the construction and operation of my invention so as to enable others to construct and operate the

same what I claim as new and desire to secure by Letters-Patent is:

1. The combination in a device of the character described, of a cylinder adapted to be secured to a car body, a ball-socket in the front end thereof, a ball mounted therein, a stem on said ball extending outwardly from the end of said cylinder, a coupling member on the extremity thereof, a nipple on said ball extending through a slotted opening in said cylinder, said ball having an air passage from said nipple through the stem thereon, spring mechanism in said cylinder behind said ball, and pipe connections from a train-pipe to said nipple, substantially as set forth.

2. The combination in a device of the character described, of a cylinder adapted to be secured to a car body, a ball socket in the front end thereof, a ball mounted therein, a stem on said ball extending outwardly from the end of said cylinder, a coupling member on the extremity thereof, a nipple on said ball extending downwardly through a slotted opening in the side of said cylinder, said ball having an air passage leading from said nipple through said stem, a pipe coupling on said nipple, a pressure plate in said cylinder behind said ball, a spring in said cylinder behind said pressure plate, and an air pipe connection between the coupling on said nipple and the train pipe, substantially as set forth.

3. The combination in a device of the character described, of a cylinder adapted to be secured to a car body, a ball socket in the front end thereof, a ball mounted therein, a stem on said ball extending outwardly from the front end of said cylinder, a coupling member on the extremity thereof, a nipple on said ball extending outwardly through a slotted opening in said cylinder, said ball having an air passage leading from said nipple through said stem, a piston in said cylinder behind said ball, air pipe connections between the train-pipe and the interior of said cylinder behind said piston,

and air-pipe connections between the train-pipe and said nipple, substantially as set forth.

4. The combination in a device of the character described, of a cylinder adapted to be secured to a car body, a ball socket in the front end thereof, a ball mounted therein, a stem on said ball extending outwardly from the end of said cylinder, a pipe coupling member on the extremity thereof, a nipple on said ball extending outwardly therefrom through a slotted opening in said cylinder, a piston in said cylinder behind said ball, air passage connections between the interior of the rear end of said cylinder behind said piston and the train pipe, a non-return check-valve mechanism within said air passage connections, and air pipe connections between the train-pipe and said nipple, substantially as set forth.

5. The combination in an apparatus of the character described, of a cylinder adapted to be secured to a car body, a ball socket in the front end thereof, a ball mounted therein, a stem on said ball extending outwardly from the front end of said cylinder, a pipe-coupling member on the extremity thereof, a nipple on said ball extending outwardly through a slotted opening in said cylinder, said ball having an air passage from said nipple through the projecting stem thereof, a piston in said cylinder, air connections between the interior of the rear end of said cylinder behind said piston and the train pipe, a non-return check-valve mechanism therein, spring mechanism within said cylinder between said ball and said piston, and air-pipe connections between the train-pipe and said nipple, substantially as set forth.

In testimony whereof I affix my signature, in presence of two witnesses.

HARRY S. HARCOURT.

Witnesses:

FLORENCE STOCKERT,
H. M. STURGEON.