

(No Model.)

2 Sheets—Sheet 1

J. F. McELROY.

HOSE COUPLING.

No. 392,355.

Patented Nov. 6, 1888.

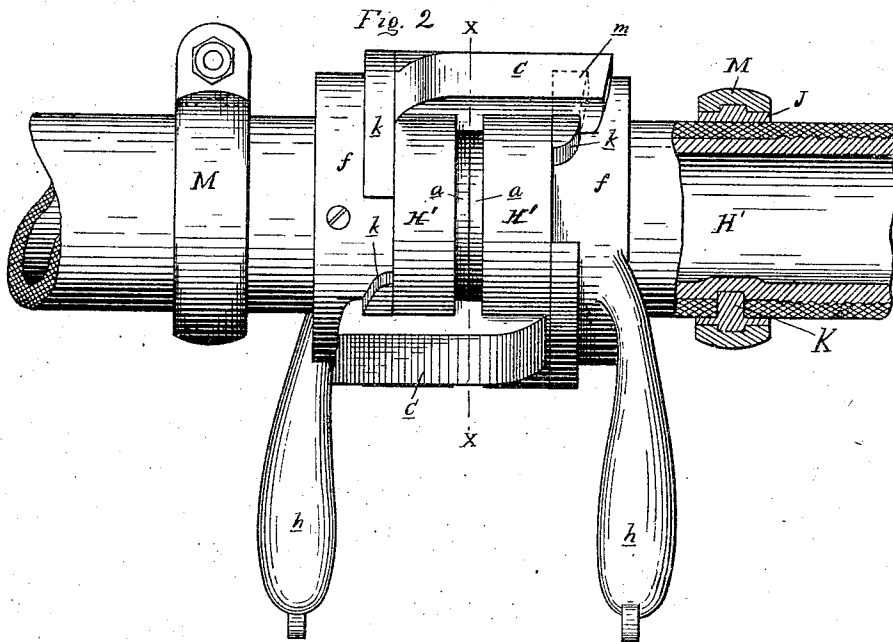
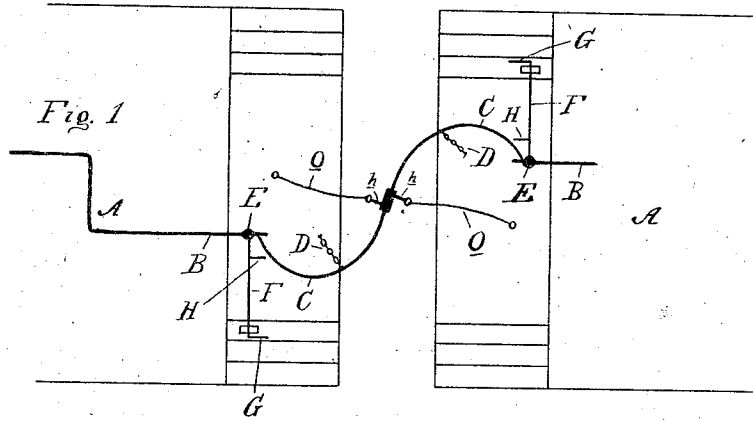
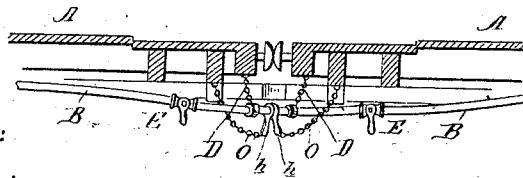


Fig. 10.



Witnesses:

P. M. Hullert.
James Whittemore.

Inventor:

James F. McElroy.
By Thos. S. Sprague & Son.

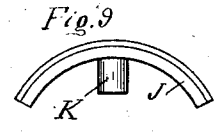
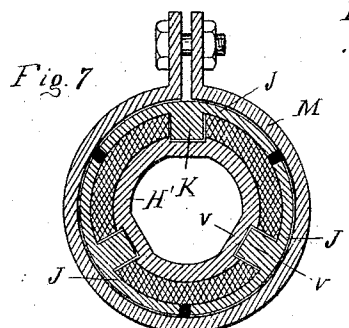
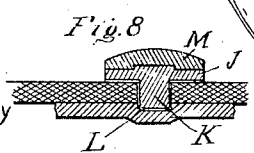
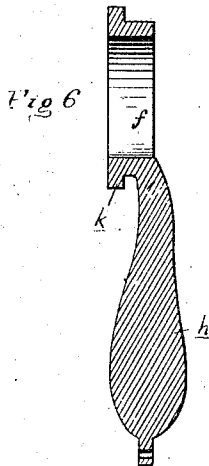
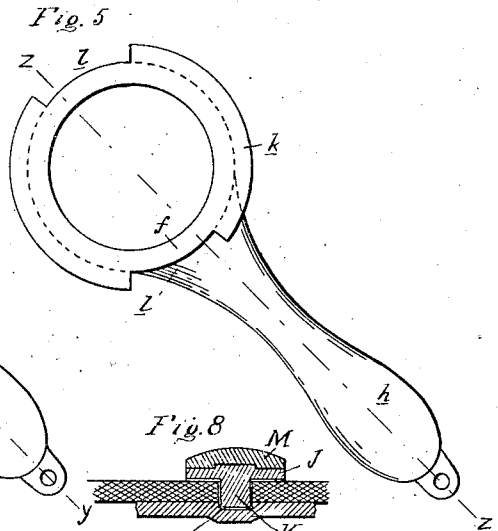
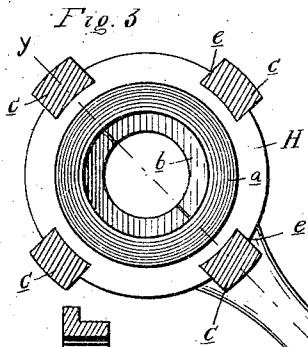
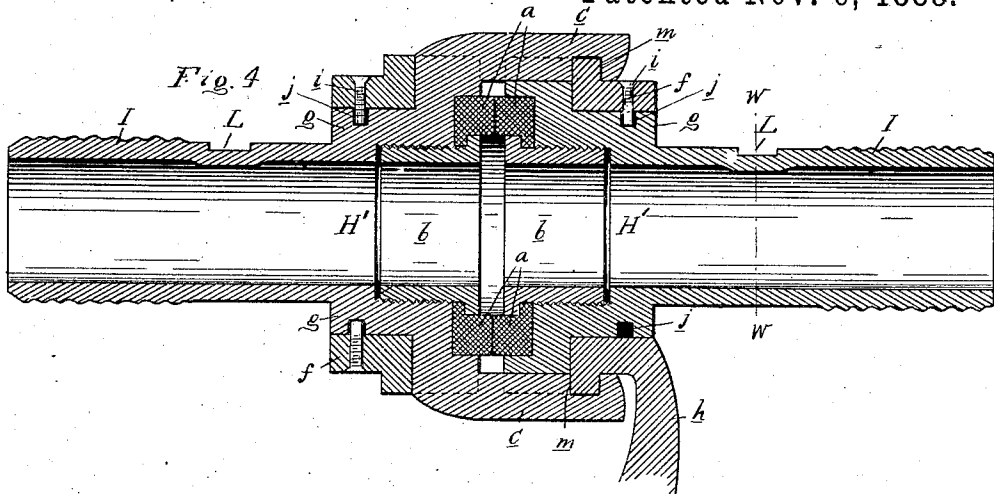
Atty.

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P. M. Hulbert.
Geo. Whittmore

Inventor:

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Att'y.

UNITED STATES PATENT OFFICE.

JAMES F. McELROY, OF LANSING, ASSIGNOR TO THE McELROY CAR HEATING COMPANY, OF DETROIT, MICHIGAN.

HOSE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 392,355, dated November 6, 1888.

Application filed January 3, 1888. Serial No. 259,627. (No model.)

To all whom it may concern:

Be it known that I, JAMES F. McELROY, a citizen of the United States, residing at Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Hose-Couplings, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in pipe-couplings especially designed for coupling the main pipe for conveying steam or hot water for heating purposes or other fluid medium from car to car in railway-trains; and the invention consists in the peculiar arrangement of a flexible pipe and coupling between the cars; secondly, in the peculiar construction of the flexible pipe and coupling, and, thirdly, in the peculiar manner of joining the flexible pipe to the coupling-heads, all as more fully hereinafter described.

In the drawings which accompany this specification, Figure 1 is a diagram plan showing my improved coupling as arranged between the ends of adjoining cars. Fig. 2 is a side elevation of the coupling proper. Fig. 3 is a section on line X X in Fig. 2. Fig. 4 is a longitudinal section on line Y Y, Fig. 3. Fig. 5 is a detached elevation of one of the cam-levers. Fig. 6 is a section on line Z Z in Fig. 5. Fig. 7 is a section on line W W in Fig. 4. Fig. 8 is a section on line V V in Fig. 7. Fig. 9 is a detached elevation of the clamp-washers, and Fig. 10 is a vertical central section through two adjoining cars provided with my improved pipe-coupling.

A A represent the ends of two adjoining cars.

B B are the main or train pipes under the cars, the ends of which I bring to one side of the car-coupler, so that if any two cars meet the ends of the main pipe are upon opposite sides of the center of the car.

C C are two sections of flexible pipe or hose, by means of which the ends of the main pipe are connected together between the cars. Each section of the flexible pipe is permanently secured at one end to the train-pipe, and their inner ends in the center between the cars are coupled together by means of my improved coupling, as more fully hereinafter described.

To enable the hose to give and take with the motion of the train and to bring the coupling into the center and as much as possible cross-wise of the car, I make it sufficiently long to assume the form of an S between the ends of the main pipe, and support it, preferably, in a horizontal position by means of the chains D, depending from the platform of the car, so as to bring the plane of the pipe just below the car-coupling and as much as possible into a general plane with the main pipe to prevent the formation of a pocket or trap for water. I preferably join the flexible pipes at an angle to the ends of the train-pipes, as shown, whereby the form of the letter S may be easily obtained even with the heaviest kind of steam-hose, the flexibility of which is too restricted to assume a short curve without damage; but with lighter hose the flexible pipes may be joined in a straight line to the train-pipes.

At the ends of the main pipes I place the valve E, which is provided, preferably, with a suitable drip on the hose side, so arranged that when the valve is closed the drip is open, and this valve I provide with the stem F, which projects laterally, and is provided with the handle G for operating it from the side of the car, or from between the cars or from the platform, as desired, and with the handle H in closer proximity to the valve for operating it from underneath the car.

The coupling proper consists of two like metal coupling-heads, H', each of which is provided with the shank I to secure the hose thereto, and this is preferably accomplished in the following manner: The shank is preferably corrugated on the outside in the usual manner to increase the friction of the hose thereon, and to fasten it securely against displacement I use a ring divided into sections J, each of which is provided with the inward projection or stud K, which is inserted through a hole formed in the hose and engages on a ridge or into a corresponding pit, L, on the shank of the coupling. This ring, or rather sections of ring, is then confined upon the outside by the clamping-collar M, which may preferably engage with the ring by means of an angular mortise and tenon, as shown. This means for securing hose to the shank provides for greater security

than the ordinary means in use for securing hose to a coupling, which are generally deficient in withstanding great internal pressure.

The coupling-heads are constructed in the following manner: Into the face of each coupling-head is seated the annular packing *a*, projecting from the face of the coupling and removably retained therein by a suitable metal bushing, *b*, which screws into it. From the periphery of each coupler-head project in axial line with the coupling two or more coupling-hooks, *c*, (there being two shown in the drawings,) and corresponding peripheral recesses, *c'*, are provided upon each coupling-head to permit the coupling-hooks of one coupling-head to project over the opposite coupling-head sufficiently to allow the hooked part of each coupling-hook to be engaged by the locking ring or collar *f*, which is sleeved upon a neck, *g*, formed at the base of each coupling-head. Each of the locking-rings is provided at its base with a suitable handle, *h*, for turning it upon the neck of the coupling, and is retained thereon against displacement by means of the pins *i* engaging into the annular groove *j* of the coupling-head. Each locking-ring is provided near its front end with the peripheral segmental cam-flanges *k* and the peripheral recesses *l* between them corresponding with the coupling-hooks on each coupling, all so arranged that if these recesses *l* are made to register with the recesses *c* in its respective coupling-head the two couplings are free to be brought together or drawn apart, and, if being brought together and the two handles *h* are turned toward each other, the locking-flanges *k* of each locking-ring will enter the grooves or hooks *m* of each coupling-hook, and thereby lock the two couplings together, and by applying suitable force to the handles *h* the couplings may be forced together as firmly as required to form a steam and water tight joint.

In practice I preferably use only two coupling-hooks and arrange the parts in such manner that the handles *h* when uncoupled are about at right angles with each other, more or less, and when coupled each stands at an angle of about eighty-five degrees (more or less) below the horizontal plane through the axis of the coupling. Thus the handle of each locking-ring has to be susceptible of a free play through an angle of about forty-five degrees, and by suitable stops in the grooves *j* in the neck of the coupling-heads I limit the movement of the handles to this play. One end of the cam-flanges *k* acts as a stop to prevent the turning of the rings in the wrong direction.

To permit the couplings to uncouple automatically in case the cars become detached accidentally or otherwise, I connect the end of each handle to the end of the car by means of a chain or rope connection, *o*, which, as long as the cars are in normal relation to each other, remains slack, but which upon the cars

separating from each other draws the handles in opposite directions, as required to effect the uncoupling.

By arranging the flexible pipe-sections between the cars in the shape of an **S** all the necessary slack is obtained in a horizontal plane and the coupling is held with its axial line at right angles, or nearly so, to the line of the train, and thus the handles *h* are held in the most handy position for the brakeman to couple and uncouple by hand, while at the same time the ropes or chains *o* pull in the proper direction to uncouple automatically in case of the cars becoming disconnected accidentally or otherwise.

Another advantage of the **S** form of the flexible hose-connection is that all the necessary slack is thereby provided for in a horizontal plane, which prevents the formation of a pocket and permits of locating the coupling in the center below the car-coupling without bringing it so near the ground as to be unhandy.

The valve **E**, with its operating-handles **H** and **G**, permits the brakeman to shut off the agent contained in the pipes from the car or from the ground, and provides against any possible danger to the operator from such agent in the pipe in coupling and uncoupling, and for the same reason the handles *h h* are preferably wrapped with a woven wire, cord, or otherwise protected.

It is obvious that instead of providing the locking-rings with cam-flanges the grooves *m* in the hooks may be cam-shaped. A great advantage of my coupling is that the two coupling-heads are firmly drawn together in coupling without the faces rubbing against each other in any way. This preserves the packing from injury, which soon wears it out, as experience has demonstrated in couplers where the heads have to be rotated in coupling the two together.

A further advantage of my coupling is the peculiar construction of the locking rings or collars, as by placing the locking-cams at the front end of the ring and the handles at the rear end or base ample clearance is provided between the handles for the operator. It will further be observed that the locking-ring bears all around against the shoulder of the neck of the coupling-head, and that the coupling-hooks are independent of the coupling-ring, so that the coupling-heads are always in proper relation to each other for coupling, provided they are properly secured to the flexible pipes, and when coupled the hooks are equal distances apart around the coupling.

The **S**-connection between the train-pipes is not only applicable to the coupling herein described, but to all couplings of this character—that is, to couplings consisting of two like parts adapted to be united and disunited by a partial rotation of handles on said coupling—and I therefore desire to broadly cover such construction.

What I claim as my invention is—

1. The combination, with a coupling of the character described, of two flexible hose-sections connecting said coupling with the ends of two train-pipes, with a slack between the cars, and a support for each hose-section arranged to maintain the slack substantially in a horizontal plane in the form of a letter S, whereby the axis of the coupling is placed substantially at right angles to the longitudinal direction of the cars, substantially as described.

2. In a pipe-coupling for railway-cars, the combination, with a coupling consisting of two like halves, each provided with a loose coupling-ring, and handles on said rings, whereby the two halves are united and disunited by a partial rotation of the coupling-rings, substantially as described, of two flexible hose-sections connecting said coupling with a slack with the ends of two train-pipes, a support for each hose-section to maintain said slack substantially in a horizontal plane in the form of a letter S, and of connections between the ends of the handles and adjoining cars in the longitudinal direction thereof, substantially as described.

3. In a pipe-coupling for railway-cars, the combination of the coupling-heads H', the loose ring f, sleeved thereon and provided with the handles h, the chains or ropes c, connect-

ing the handles with the ends of two cars, respectively, the flexible loose sections C, connecting the coupling with a slack with the ends of the train-pipes, and the chains or ropes D, to maintain the hose-sections substantially in a horizontal plane and with the axis of the coupling substantially at right angles to the horizontal direction of the cars, substantially as described.

4. The combination, in a pipe-coupling, of the coupling-head provided with a shank for securing the flexible pipe thereto, ring-sections provided with inwardly-projecting studs, corresponding ridges or pits on the shank, and a clamping-collar, all arranged to operate substantially as described.

5. The combination, in a pipe-coupling, of the coupling-head provided with a shank engaging with the flexible pipe; the ring-sections provided with the inwardly-projecting studs, the corresponding pits or ridges on the thimble, and the clamping-collar having a mortise-and-tenon engagement with the ring-sections, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 24th day of December, 1887.

JAMES F. McELROY.

Witnesses:

E. O. KELLEY.

J. CORNELL.