(No Model.)

# J. F. McELROY.

## PIPE COUPLING

No. 458,793. Patented Sept. 1, 1891.

*Fig. 1.*

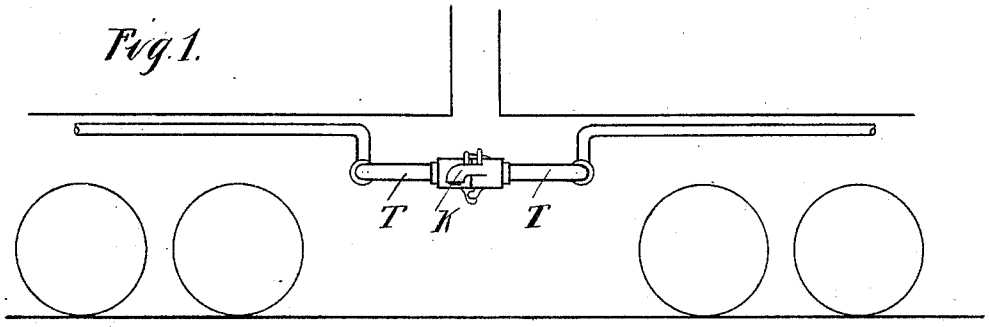



*Fig. 3.*

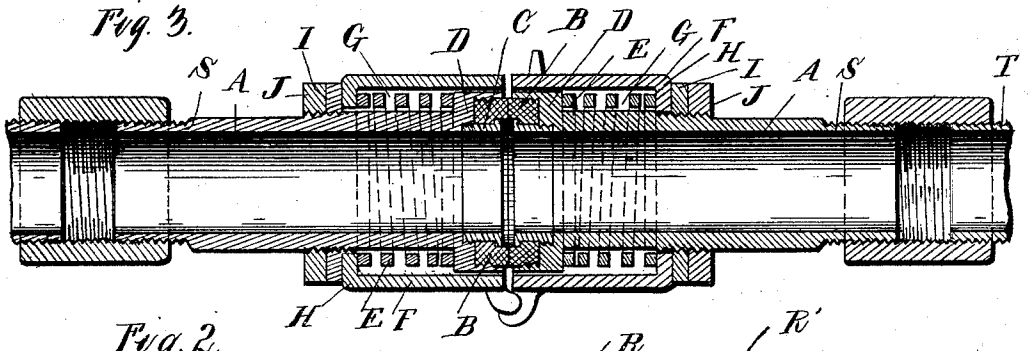
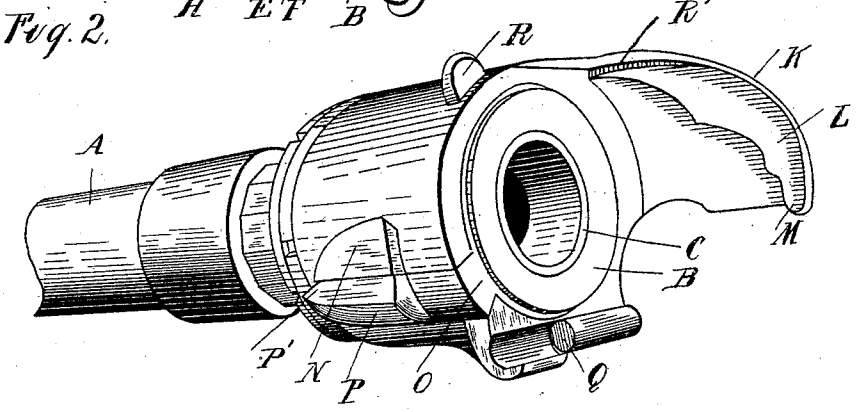



*Fig. 2.*




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# UNITED STATES PATENT OFFICE.

JAMES F. McELROY, OF ALBANY, NEW YORK, ASSIGNOR TO THE CONSOLIDATED CAR HEATING COMPANY, OF SAME PLACE.

## PIPE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 458,793, dated September 1, 1891.

Application filed November 20, 1890. Serial No. 372,104. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES F. McELROY, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Pipe-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; and the invention relates to the peculiar construction of a coupler especially designed to be used for connecting the ends of the train-pipes conveying the steam or air upon railway-trains in connection with flexible section of hose or metal pipe, preferably the latter, at the end of such train-pipes.

The invention consists in the peculiar construction of a two-part coupling, each part of the same construction and comprising a coupling-head having an aperture therethrough for the passage of the fluid, a suitable contacting face for the adjoining half, a sleeve secured upon said head and having side arm at one side provided with a hook. Upon the opposite side of said sleeve is formed a corresponding locking-lug. Between the sleeve and head is applied means for hinging the parts of the coupling together at their lower edge and locking them by means of the side extensions and locking-flange, all so arranged that the parts are so held by gravity in their closed position and the two coupling-heads are held together through the medium of the spring. This construction is to enable me to contact the faces of the coupling-heads under pressure, whereby the ordinary jolting of the coupler in use upon trains will not separate the heads and cause them to leak.

The invention further consists in the peculiar construction of the parts whereby a longitudinal strain such as is applied in separating the cars will act to uncouple the adjoining heads. This I accomplish by means of a fin or lug on the coupling-head, arranged with a cam-face below the locking-lug on the sleeve, so constructed that as strain is brought to bear in the longitudinal direction of the parts the spring will be compressed and the unlocking-lug will strike the locking-arm and disengage the hook from the lug.

The invention further consists in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

In the drawings, Figure 1 is a diagram side elevation showing the coupling applied to a car. Fig. 2 is a detached perspective view of one of the couplers. Fig. 3 is a vertical central longitudinal section thereof.

A is a metal tube forming the coupling-head, having a suitable packing B secured at its forward end by means of the packing-ring C.

D is an annular flange at the forward part of the coupling-head upon the exterior thereof.

E is a spring, preferably of spiral form, sleeved upon the coupling-head and bearing with its front end against the flange D.

F is a coupling-sleeve slidingly engaging upon the coupling-head, of suitable size to embrace the annular flange D and forming a chamber G between the sleeve and coupling-head in rear of said flange, in which the spring E rests, being compressed by means of an inwardly-extending flange H upon the sleeve, the spring being held under pressure by means of the compression-rings I, suitably screw-threaded to engage with the screw-threaded portion J of the coupling-head.

K is a forwardly-projecting arm formed at one side of the coupling-sleeve and carrying at its forward inner end a locking-hook L. Below this hook is formed the downwardly-extending finger or unlocking-flange M. Upon the other side of the sleeve is formed a locking-lug N, of suitable shape to receive the hook L of the arm K of the adjoining coupling. Beside the arm K the sleeve is provided with a longitudinal slot in which a fin or lug O, formed upon the side of the coupling-head, engages and moves therein. The fin O is provided with an unlocking-flange P, having the incline or cam P′ formed at its rear end.

Q is a hinged joint formed at the lower edge of the sleeve.

R is a guide-flange formed upon the upper side of the sleeve and adapted to guide the arm K of the adjoining coupling by means of the guide-bearing R′, formed upon said arm.

S is a nipple preferably formed integral with the coupling-head screw-threaded at its end to couple in any suitable manner with

the end T of the train-pipe or coupler-section, a flexible joint being provided to allow of moving the couplers at an angle to each other for the purpose of coupling and uncoupling them.

In the normal position of the parts the coupler-head extends a slight distance in front of the coupling-sleeve, so as to allow of a motion of the sleeve upon the head forwardly. To couple the parts thus constructed, the two hinged joints Q of the adjoining couplers are engaged with each other, the upwardly-inclined arms K of one coupler extending beyond the side of the other, and are guided by the guide-flange R and guide-bearing R′, so that the hook L will engage over the lug N and lock the parts together.

It is evident that the weight of the couplers will hold them together by means of the parts described. The two arms extending above and beyond the locking-lugs N are held by the weight of the coupler in place.

The only interlocking connection between the two halves of the coupler is the hook and lug upon the sleeve. This tends to bring the two sleeves toward each other, and they in turn carry this movement to the coupler-heads through the medium of the spring, the flanges H bearing against the rear of the spring and compressing the spring upon the flange D, so that the contacting faces of the coupler-heads are held together by the weight of the couplers applied to the springs. In case of the movement of the heads, caused by the jolting of the train, this construction will allow of such movement without causing the coupling-heads to separate the springs taking up such slight motion.

The uncoupling is performed in the following manner: The cars being uncoupled, a longitudinal strain will be applied to the pipe-coupling, which will cause the spring E to be compressed, sliding the sleeves forwardly, the unlocking-lugs P remaining stationary in relation to the lugs N. It is evident that this motion will cause the cam P′ to strike the finger M and cause it to be moved upward, disengaging the hook L from the lug N, allowing the parts to separate. It will thus be seen that the unlocking of the parts is accomplished without changing the level of the coupler.

Couplers of similar construction have heretofore been constructed adapted to be uncoupled by causing them to change their relative angular position, (shown, for instance, in the patent to James H. Sewall, No. 363,553, dated May 24, 1887;) but I am not aware that a coupling of this description has been provided with means for uncoupling it by direct longitudinal strain; nor am I aware that the contacting faces of a pipe-coupler have heretofore been held together by gravity through the medium of a spring, whereby a tight joint is maintained, notwithstanding the limited movement of the parts upon each other arising from the motion of the train.

What I claim as my invention is—

1. In a pipe-coupler, two like parts consisting of coupling-heads having fins thereon, sleeves on the heads having longitudinal slots in which the fins move, outwardly-extending hooks on the sleeves, locking-lugs on the sleeve adjacent to the slot, and yielding bodies between the sleeves and head, substantially as described.

2. In a pipe-coupling, the combination of the head A, the sleeve F, the chamber G between the two, the spring E in that chamber, the flange D on the exterior of the coupling-head, against which the forward end of the spring presses, and an inwardly-extending flange H upon the sleeve, the compression-ring I, and interlocking coupling-arms upon the sleeve, substantially as described.

3. In a pipe-coupling, the combination, with the head D, sleeve F, and spring E, constructed and operated substantially in the manner set forth, of the forward-projecting arm K, hook L, and extension M of the fin O upon the coupling-head projecting through a slot in the sleeve in proximity to the locking-lug N, the lug N, and the cam P′, substantially as described.

4. In a pipe-coupler, the combination, with the coupling-head, the sleeve, and the spring constructed substantially in the manner set forth, of the forwardly-extending arm upon one side of the sleeve, the locking-lug upon the other, and the fin secured to the coupler-head and projecting through a slot in the sleeve, adapted to engage the locking-arm from the lug upon the application of longitudinal strain, substantially as described.

5. In a pipe-coupler, two like heads, sliding hooks on the heads projecting out beyond the same, locking-lugs over which the hooks engage, and lugs on the heads engaging the ends of the hooks to lift them from the locking-lugs when the heads are drawn apart, substantially as described.

6. In a pipe-coupler, two like heads, a sliding hook on each head arranged on opposite sides and extending beyond the same, locking-lugs over which the outer ends of the hooks engage, whereby the weight of the coupler retains the hooks in their locked position, and means on the heads for disengaging the hooks by the longitudinal movement of the heads, substantially as described.

7. In a pipe-coupler, two like heads, slotted sleeves on the heads, hooks on the ends of the sleeves, and locking-lugs on the sides of the sleeves, and projections in the slots of the sleeves for disengaging the hooks from the lugs when the heads are moved longitudinally, substantially as described.

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

JAMES F. McELROY.

Witnesses:

EDWIN A. SMITH,

H. J. NODINE.