No. 793,785. PATENTED JULY 4, 1905.

E. T. HANSON.

TRAIN PIPE COUPLING.

APPLICATION FILED OCT. 12, 1904.

3 SHEETS—SHEET 1.

Fig. 1.

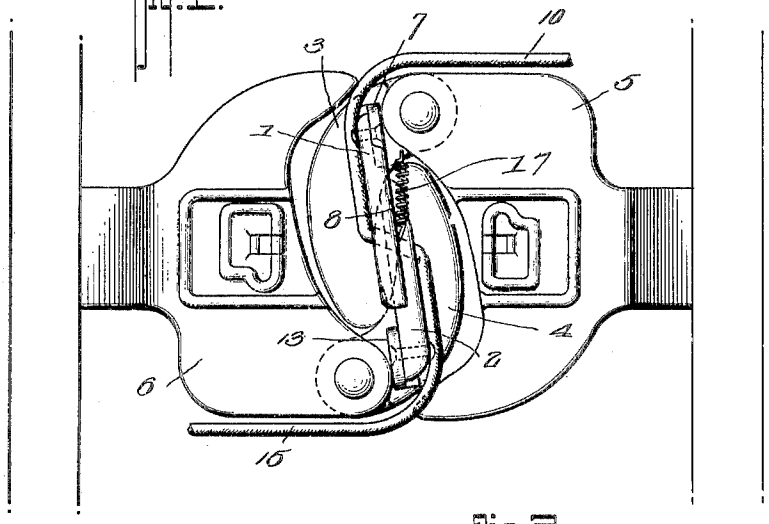


Fig. 3.

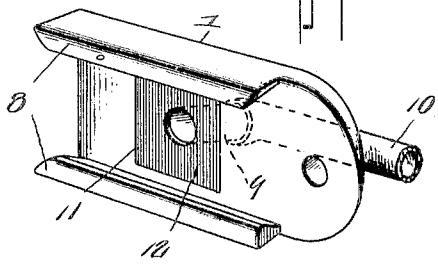


Fig. 4.

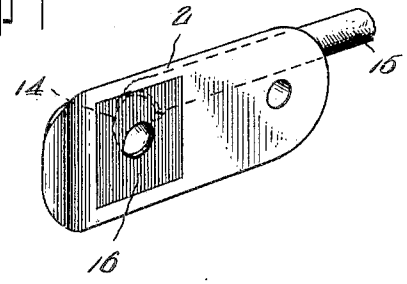
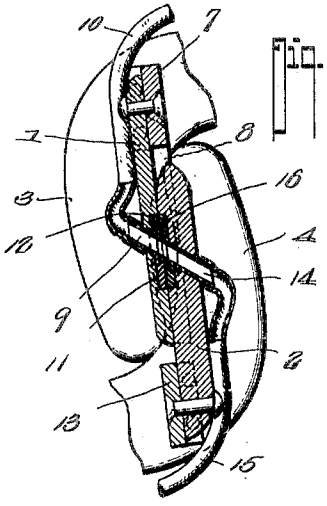


Fig. 2.



Witnesses,
E. J. Stewart
W. S. Shepard.

Elias T. Hanson, Inventor.
by Cashow & Co
Attorneys

PHOTO-LITHOGRAPHED BY SACKETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 793,785. PATENTED JULY 4, 1905.

E. T. HANSON.

TRAIN PIPE COUPLING.

APPLICATION FILED OCT. 12, 1904.

3 SHEETS—SHEET 2.

Fig. 5.

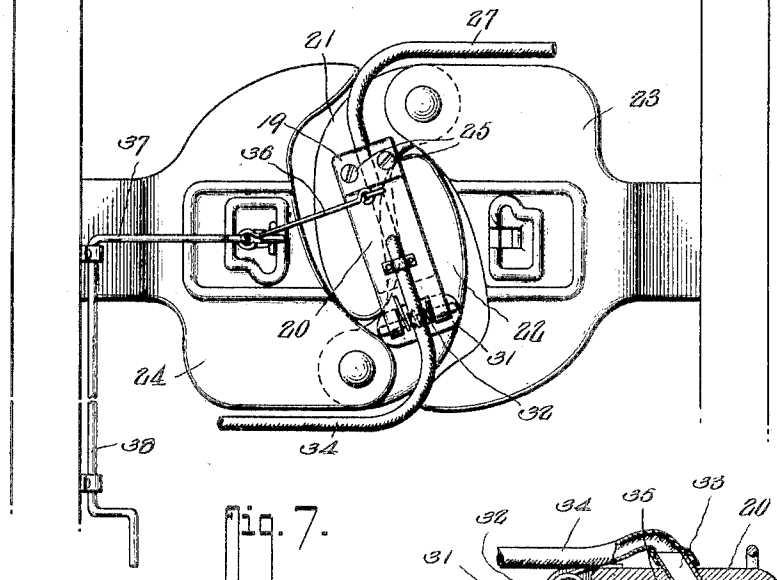


Fig. 7.

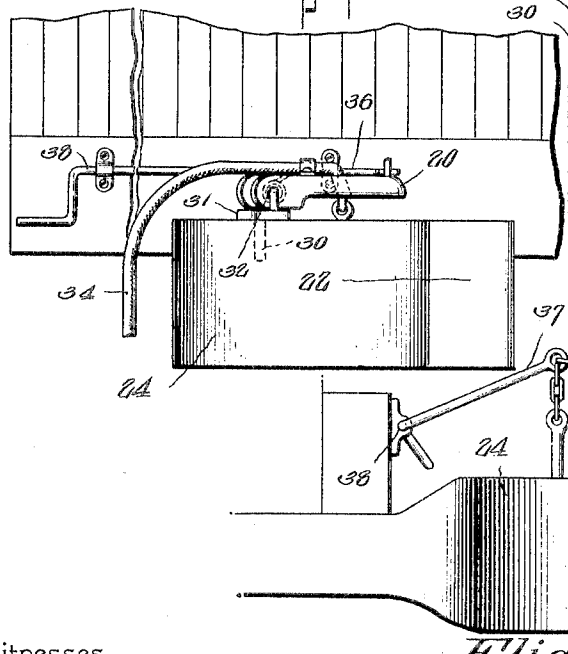


Fig. 6.

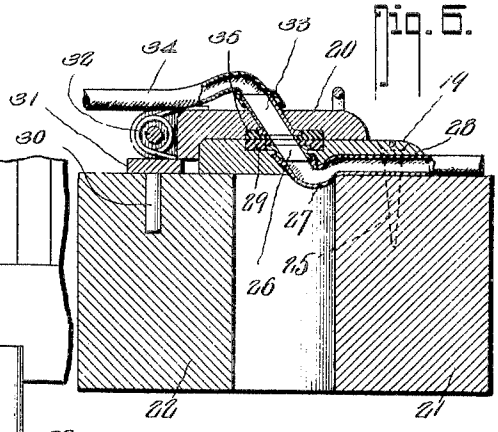


Fig. 8.

Witnesses

E. T. Hanson

H. S. Shepard

Elias T. Hanson, Inventor.

by C. A. Snow & Co

Attorneys

PHOTO LITHOGRAPHED BY SACHETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 793,785. PATENTED JULY 4, 1905.

E. T. HANSON.

TRAIN PIPE COUPLING.

APPLICATION FILED OCT. 12, 1904.

3 SHEETS—SHEET 3.

Fig. 9.

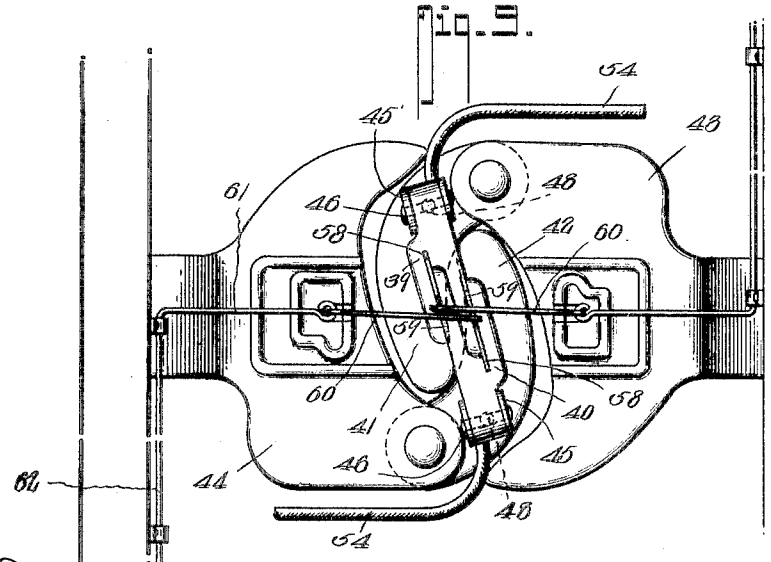


Fig. 11.

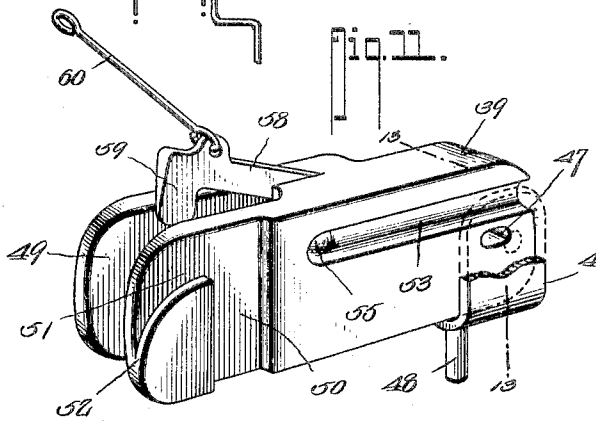


Fig. 10.

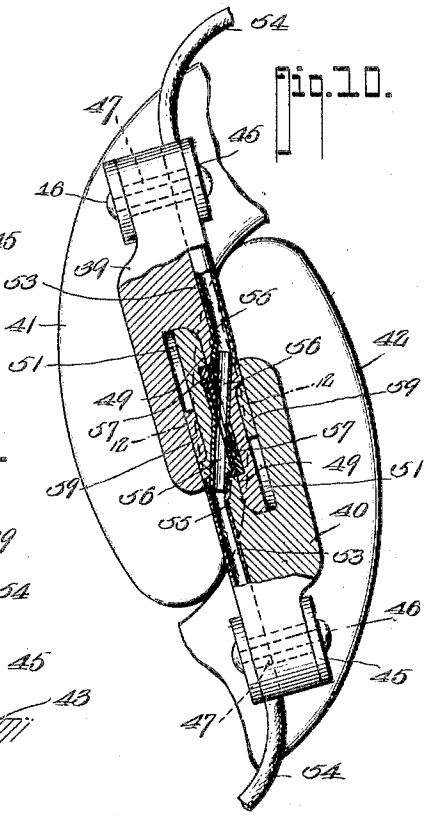


Fig. 12.

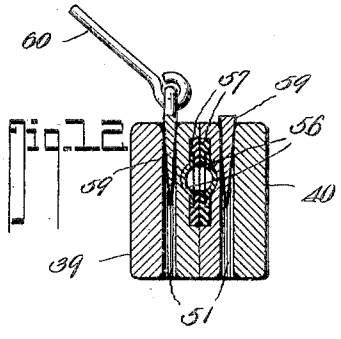
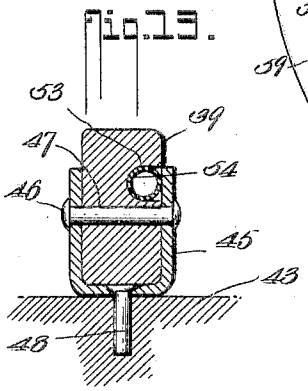


Fig. 13.



Witnesses

E. T. Stewart

K. S. Shepard

Elias T. Hanson, Inventor.

by Cushman & Co

Attorneys

PHOTO-LITHOGRAPHED BY SACKETT & WILHELMS LITHO. & PTG. CO. NEW YORK.

No. 793,785. Patented July 4, 1905.

UNITED STATES PATENT OFFICE.

ELIAS T. HANSON, OF GARRETSON, SOUTH DAKOTA.

TRAIN-PIPE COUPLING.

SPECIFICATION forming part of Letters Patent No 793,785, dated July 4, 1905.

Application filed October 12, 1904. Serial No. 228,203.

To all whom it may concern:

Be it known that I, ELIAS T. HANSON, a citizen of the United States, residing at Garretson, in the county of Minnehaha and State of South Dakota, have invented a new and useful Train-Pipe Coupler, of which the following is a specification.

This invention relates to train-pipe systems, and has for its object to provide an improved coupling for the train-pipes capable of being mounted directly upon the form of automatic car-coupler now in general use, so as to automatically couple and uncouple simultaneously therewith.

With these and other objects in view the present invention consists in the combination and arrangement of parts, as will be hereinafter more fully described, shown in the accompanying drawings, and particularly pointed out in the appended claims, it being understood that changes in the form, proportion, size, and minor details may be made within the scope of the claims without departing from the spirit or sacrificing any of the advantages of the invention.

In the accompanying drawings, Figure 1 is a plan view of a pair of engaged car-couplers having the present form of train-pipe couplers carried thereby in coupled condition. Fig. 2 is a horizontal sectional view taken through the train-pipe couplers with the movable knuckles of the car-couplers in plan. Figs. 3 and 4 are detail perspective views of the train-pipe coupler members. Fig. 5 is a plan view illustrating another form of the invention. Fig. 6 is a detail vertical sectional view thereof. Fig. 7 is a front elevation of the movable coupler member. Fig. 8 is a side elevation of Fig. 7 with the car-coupler and train-pipe coupler in position to engage complementary couplers. Fig. 9 is a plan view similar to Figs. 1 and 5, showing the preferred form of the invention. Fig. 10 is an enlarged detail horizontal sectional view of a pair of coupled couplers. Fig. 11 is a detail perspective view of one of the couplers. Fig. 12 is a cross-sectional view on the line 12 12 of Fig. 10. Fig. 13 is a cross-sectional view on the line 13 13 of Fig. 11.

Like characters of reference designate corresponding parts in each and every figure of the drawings.

The form of my invention illustrated in Figs. 1 to 4, inclusive, comprises a channeled member 1 and a complementary head or member 2, which are mounted upon the pivotal knuckles 3 and 4 of the Janney-type automatic car-couplers 5 and 6. The member 1 is mounted either upon the top or the bottom of the movable knuckle in substantial parallelism therewith, with what will be termed its "outer" end pivotally supported upon a post 7, carried by and projected from the knuckle adjacent the pivotal support thereof, whereby the member 1 is capable of tilting movement in a vertical direction. This member has its longitudinal flanges 8 upon the rear side thereof and is pierced about midway of its ends by a metallic nipple or coupling 9, to the outer end of which a flexible pipe 10 is connected for engagement with the adjacent rigid train-pipe. (Not shown.) In the back of the member 1 there is a socket or recess 11, surrounding the nipple or coupling 9, and in this recess a yieldable packing 12, of rubber or other suitable material, is fitted, so as to embrace the nipple and project beyond the same. The other member, 2, of the coupling is pivotally supported upon its outer end upon a post 13, so as to swing in a vertical plane and arranged to automatically slide into the channel upon the back of the member 1 when the two couplings are brought together. This member 2 is provided with a metallic nipple or connection 14, having a flexible pipe 15, connected to the outer or rear end thereof, with its forward or inner end embraced by packing 16 in the manner described for the coupling member 1. A suitable spring 17 extends between the member 1 of the train-pipe coupling and the adjacent car-coupling, so as to yieldably maintain the two train-pipe couplings at their lowermost limits and to permit of vertical yielding thereof, so as to prevent binding and breakage of the coupling members when strains are placed thereon. By mounting the train-pipe coupling upon the movable knuckles of the car-coupler said train-pipe couplers will always be in position to automatically engage one another during the automatic engagement of the car-couplers, and

therefore require no attention in addition to that which is given to the car-couplers. Furthermore, the train-pipe couplers automatically disengage from one another with the disengagement of the car-couplers. It will of course be understood that the strains upon the knuckles of the car-couplers retain the train-pipe couplers in intimate engagement, and as the packings 12 and 16 come into mutual engagement there will be a fluid-tight joint between the nipples or connections 9 and 14, so as to prevent leakage at this point.

Another form of the device includes complementary coupler members 19 and 20, carried by the movable knuckles 21 and 22 of the respective car-couplers 23 and 24. The coupler member 19 is fixed to the top or bottom of the adjacent movable knuckle by suitable fastenings 25 and projects at the inner or rear edge of the knuckle, so as to lap the other member of the coupler. A nipple or tubular connection 26 centrally pierces the member 19, with a flexible pipe-section 27 connected to the lower end of the nipple and extended rearwardly through a groove or channel 28 in the bottom of the member and connected to the rigid train-pipe of the adjacent car. A suitable packing 29 is let into a recess in the upper face of the coupler member and surrounds the upper end of the nipple 26.

The movable member 20 is supported upon a pivot or swiveled post 30, having a head 31 lying upon the top of the movable knuckle of the car-coupler, the rear end of the member 20 being connected to the head by means of a spring-hinge 32, the tendency of which is to normally maintain the coupler member 20 at its downward limit in snug engagement with the other member. This member 20 is pierced centrally by a tubular connection or nipple 33, having a flexible pipe 34, connected to the upper end thereof, and a packing 35 surrounding the lower end of the nipple and let into a recess in the under side of the coupler member, so as to register with the packing 29 of the other coupler member, and thereby insure a fluid-tight joint between the two members.

Preparatory to uncoupling the two members it is proposed to elevate the upper or movable member 20 of the train-pipe coupling so as to avoid damage to the couplers, and this is carried out by connecting a link 36 to the free end of the movable member 20 and to the crank-arm 37 of the usual uncoupling-shaft 38, mounted upon the front of the car. When the uncoupling-shaft 38 is manipulated to elevate the locking-pin of the car-coupler so as to release the movable knuckle thereof preparatory to uncoupling, the link 36 operates to elevate the coupler member 20 upon its hinge 32, as clearly indicated in Fig. 8, and when the adjacent cars are separated and the movable knuckle 22 is drawn outwardly the coupler member 20 will remain substantially in its original elevated position by reason of the swiveled post 30 remaining fixed upon its axis during the outward movement of the knuckle 22. The movable member 20 is of course supported in an elevated position preparatory to uncoupling, so that when a pair of couplers are run together the stationary member 19 will pass beneath the movable member 20 and the latter will be automatically thrown down by its spring-hinge when released by reason of the crank-arm 37 of the uncoupling-shaft 38 being jolted downwardly when the car-couplers strike together.

The preferred form of the invention has been illustrated in Figs. 9 to 13, inclusive, and consists of duplicate substantially oblong coupler members 39 and 40, which are mounted upon the respective movable knuckles 41 and 42 of the car-couplers 43 and 44. Each train-pipe coupler has its rear end seated in a U-shaped or yoke-shaped bracket 45, with a horizontal pivot-pin 46 passed through the sides of the bracket and the rear end of the coupler, the latter being provided with a longitudinal slot 47 for the reception of the pin, so as to permit a slight endwise play of the coupler in addition to its pivotal movement in a vertical direction. The bracket 45 is provided with a pendent pin or stem 48, which is set into the top of the knuckle adjacent its pivotal end and forms a pivotal connection for the bracket to swing in a substantially horizontal direction. The outer or free end of the coupler is provided with a longitudinal vertical bifurcation 49, which is open at its top and bottom, and the rear face of the coupler is provided with a vertical groove 50 and a longitudinal groove 51, leading from the front end of the coupler to the top of the groove 50, the lower wall 52 of the longitudinal groove being rounded or beveled. The rear face of the coupler is furthermore provided with a longitudinal groove or channel 53, located adjacent the top thereof and intersecting the rear end of the coupler for the reception of the flexible train-pipe 54, the forward end of the channel terminating in a passage 55, which obliquely pierces the rear side of the coupler. In this passage 55 is a metallic tube or nipple 56, to the rear end of which the forward end of the flexible pipe is connected, as best indicated in Fig. 10. This nipple is substantially the same as those hereinbefore described and has its front end surrounded by a yieldable packing 57 let into the adjacent wall of the bifurcation 49, so that when two couplers are brought together, as in Fig. 10, the rear section of each member will be received in the bifurcation of the other member with the nipples registered, so as to produce a continuous passage between the members, the two packings being in mutual engagement to produce a fluid-tight joint at this point.

To prevent separation of the train-pipe

couplers, each of the latter is provided with a vertically-swinging latch member 58, pivotally supported within the back of the bifurcation and provided at its free end with a transversely-disposed wedge-shaped head 59, which is designed to drop into the groove or recess 50 in the rear face of the other coupler member, and thereby lock the members against endwise separation. In addition the wedge-shaped head operates to bind the couplers together transversely, so as to insure a snug fit between the packings 57. A link 60 connects each latch 58 with the arm 61 of the adjacent uncoupling-shaft 62 for the purpose of lifting the latch when uncoupling the couplers.

The purpose of the pivotal mounting of the bracket 45 will now be understood, for the reason that it permits of the train-pipe coupler being held practically stationary when the car-couplers are being separated, whereby each train-pipe coupler is always in position for engagement with a companion coupler when the two cars are run together.

Having fully described the invention, what is claimed is—

1. The combination with a Janney-type car-coupler, of a train-pipe coupler carried by the movable knuckle of the car-coupler.

2. The combination with a Janney-type car-coupler, of a train-pipe coupler carried by the movable knuckle of the car-coupler and provided with a nipple piercing the train-pipe coupler, a flexible pipe connected to one end of the nipple, and a packing embracing the other end of the nipple and let into the coupler.

3. The combination with a Janney-type car-coupler, of a train-pipe-coupling member pivotally carried upon the movable knuckle of the car-coupler.

4. The combination with a Janney-type car-coupler, of a train-pipe coupler carried by the movable knuckle of the car-coupler and mounted to swing upon a vertical axis.

5. A train-pipe coupler comprising a head member provided in one face with a longitudinal channel terminating at its forward end in a passage transversely piercing the head, and a flexible train-pipe seated in the channel and projected at its rear end for connection with a train-pipe with its forward end in communication with the passage.

6. A train-pipe coupler consisting of a head pierced by a transverse passage for communication with a train-pipe and provided at its rear end with a bracket upon which the head is mounted to swing on a vertical axis.

7. A train-pipe coupler comprising a bifurcated head having a passage piercing one side thereof for connection with a train-pipe and in communication with the bifurcation, and a vertically-swinging latch member for engagement with a complementary member.

8. A train-pipe coupler comprising a bifurcated coupler-head pierced by a passage for connection with a train-pipe and in communication with the bifurcation, and a vertically-swinging latch mounted within the bifurcation for connection with a complementary coupler.

9. A train-pipe coupler comprising a bifurcated coupler-head pierced by a passage for connection with a train-pipe and in communication with the bifurcation, and a vertically-swinging latch member carried by the coupler, one face of the coupler being provided with an upright recess for the reception of the latch of a complementary coupler.

10. A train-pipe coupler comprising a bifurcated member pierced by a passage for connection with a train-pipe and in communication with the bifurcation, and a vertically-swinging latch member having a head working in the bifurcation and wedge-shaped transversely of the latch.

11. The combination with a car-coupler having a pivotal knuckle, of a train-pipe coupler having its rear end pivotally mounted upon a vertical axis upon a pivotal knuckle with its forward end bifurcated vertically and pierced transversely by a passage communicating with the bifurcation, a flexible train-pipe connected to the other end of the passage, a vertically-swinging latch pivoted within the back of the bifurcation and provided with a wedge-shaped head, one of the external faces of the member being provided with a vertical recess intersecting the top thereof for the reception of the head of the latch of a complementary coupler.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

ELIAS T. HANSON.

Witnesses:
E. E. Cross,
W. J. West.