L. & J. LE COMPTE.

CAR, HOSE, AND ELECTRIC WIRE COUPLING.

APPLICATION FILED AUG. 9, 1909.

1,039,147. Patented Sept. 24, 1912.

3 SHEETS—SHEET 1.

Fig. 1

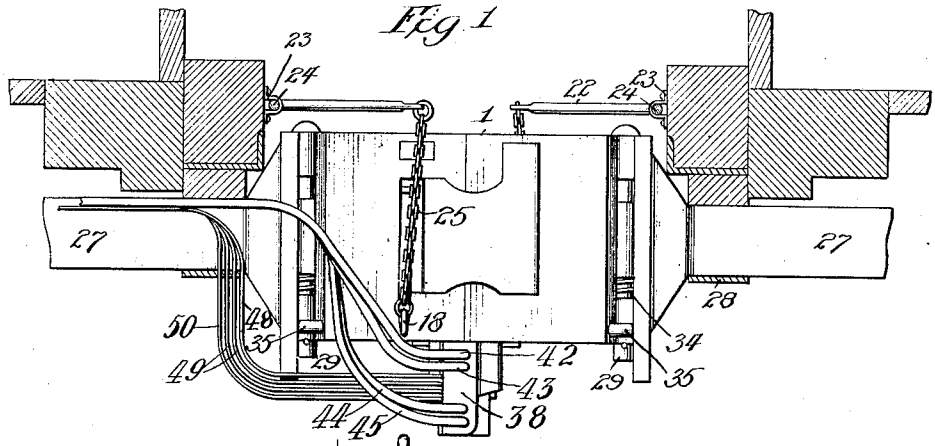


Fig. 2.

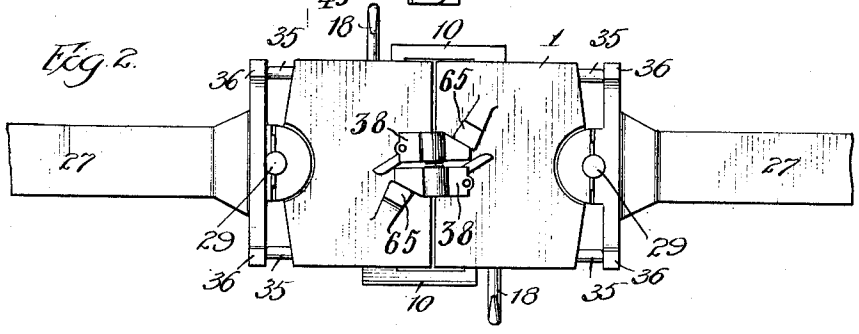


Fig. 3.

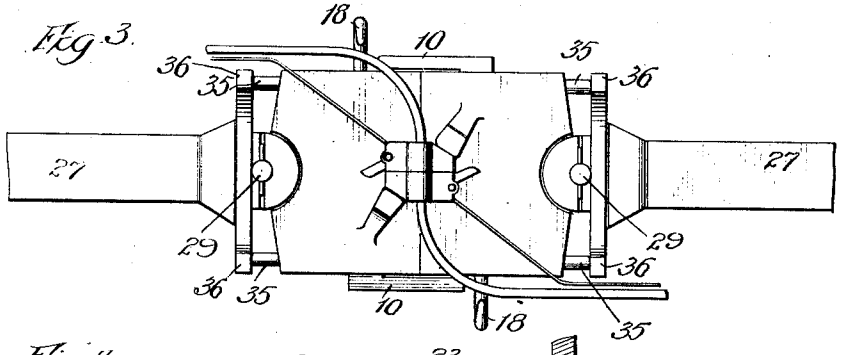
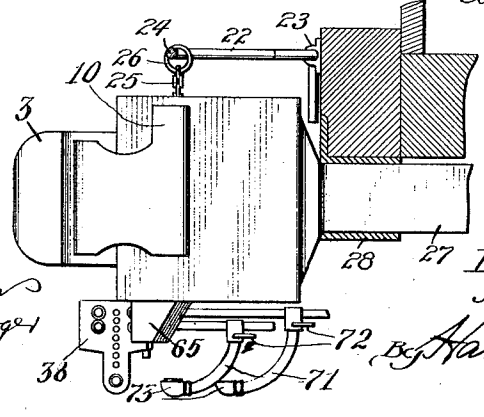


Fig. 4



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3 SHEETS—SHEET 2.

Fig. 5.

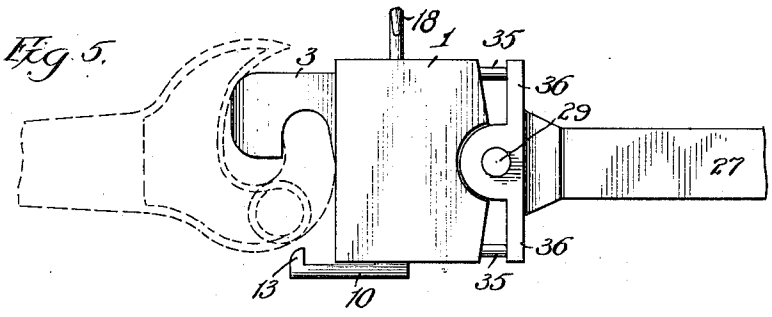


Fig. 6

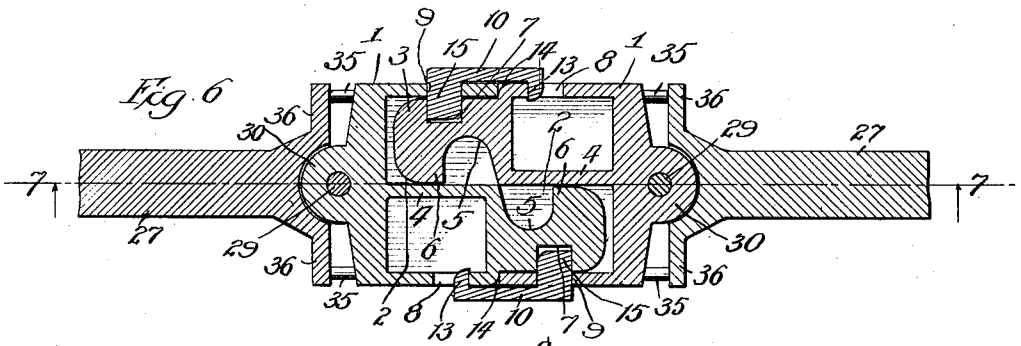


Fig. 7.

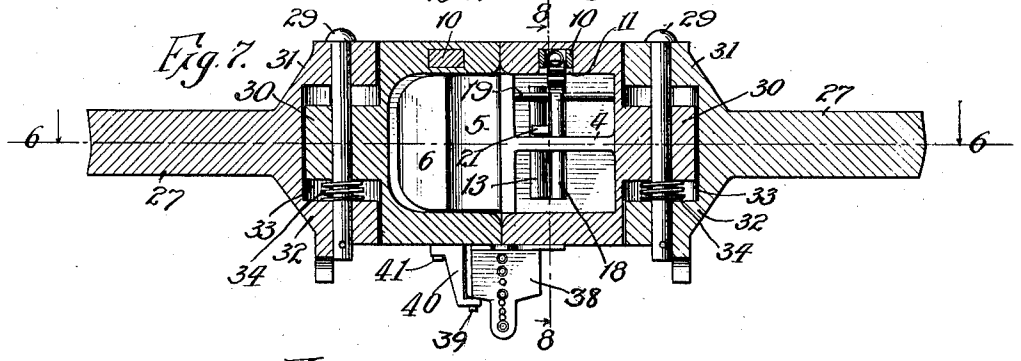
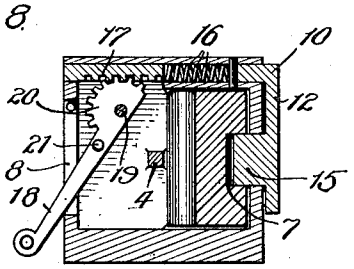


Fig. 8.



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3 SHEETS—SHEET 3.

Fig. 9

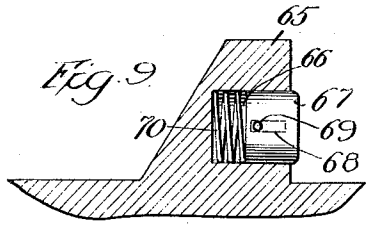


Fig. 10

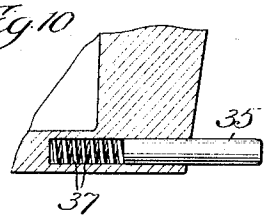


Fig. 11

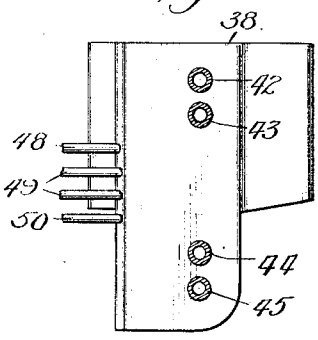


Fig. 12

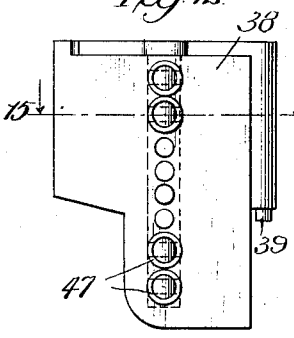


Fig. 13

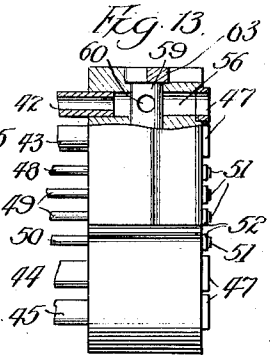


Fig. 14

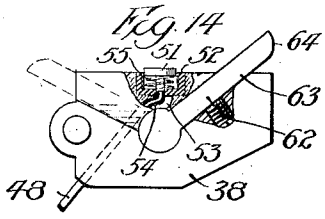


Fig. 15.

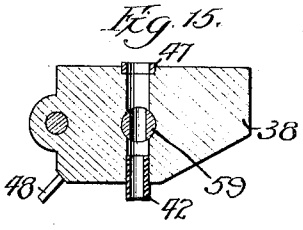


Fig. 18

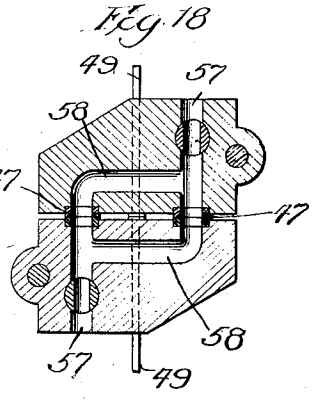


Fig. 17

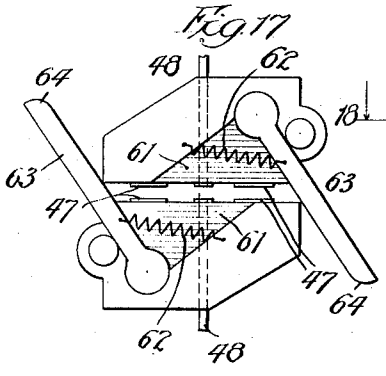


Fig. 16

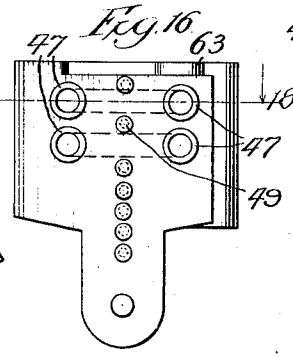
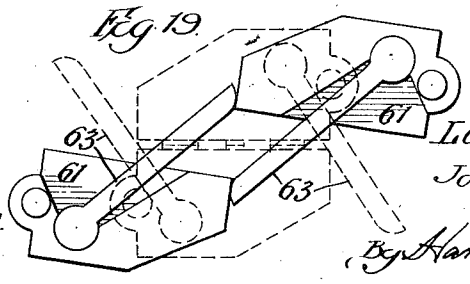


Fig. 19



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UNITED STATES PATENT OFFICE.

LOUIS LE COMPTE AND JOSEPH LE COMPTE, OF AURORA, ILLINOIS, ASSIGNORS, BY MESNE ASSIGNMENTS, TO THE LE COMPTE COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS.

CAR, HOSE, AND ELECTRIC-WIRE COUPLING.

1,039,147. Specification of Letters Patent. Patented Sept. 24, 1912.

Application filed August 9, 1909. Serial No. 511,892.

To all whom it may concern:

Be it known that we, LOUIS LE COMPTE and JOSEPH LE COMPTE, both citizens of the United States, residing in Aurora, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Car, Hose, and Electric-Wire Couplers, of which the following is a specification.

This invention relates to that class of couplers for cars, hose, and electric wires in which the car coupler heads are adapted to be connected in rigid relation to each other in such a manner that when locked or latched together they will have substantially no play with respect to each other in any direction, the duplicate coupler heads each being provided with a coupler shoe pivotally mounted on the coupler head and adapted to be moved laterally with respect to the coupler head into engagement with the adjacent coupler shoe, the coupler shoe of each coupler head being provided with one or more hose or fluid passages, or with one or more electric conductors, or with both electric conductors and fluid passages or hose adapted to be brought into operative engagement and disconnected automatically by the operation or coupling and uncoupling of the coupler heads or the mechanism for connecting and drawing the cars.

The principal object of the invention is to provide a simple, economical, durable and efficient automatic car, hose, and electric wire coupler or duplicate couplers for railway cars.

A further object of the invention is to provide combined car, hose and electric wire couplers having draw heads adapted to be pivotally connected with railway cars and movable endwise or longitudinally into engagement with each other, coupler shoes having one or more fluid passages or hose, an electric wire or wires, or both fluid passages and electric wires therein or supported by said shoes, each of said shoes being movable laterally with respect to the coupler head on which it is supported and being supported independently of the draw hooks or mechanism for connecting the draw heads, each of the draw heads being provided with a boss adapted to engage the coupler shoe of the adjacent coupler head and swing it laterally or transversely into engagement with the coupler shoe on the draw head which supports said boss, whereby the draw heads are held in rigid relation to each other and are movable endwise only into and out of engagement with each other, while the coupler shoes, and the hose and electric wires supported thereby are movable transversely with respect to the draw heads into and out of operative engagement with each other, and whereby the coupler shoes which support the hose and electric wires are adapted to be held entirely out of contact with each other and separated by the tension of the flexible hose until the gaskets or the ends of the fluid passages and the ends of the electric conductors first come in contact while moving transversely with respect to the draw heads and substantially without any frictional engagement between the adjacent faces of the coupler shoes.

A further object is to insure the automatic connection of the air-brake-fluid-passages simultaneously with the electric propelling power or the connection of the electric conductors for driving the cars.

Other and further objects of the invention will appear from an examination of the drawings and the following description and claims.

The invention consists in the features, combinations and details of construction herein described and claimed.

In the accompanying drawings, which are made a part of this specification Figure 1 is a view in side elevation of a pair of duplicate couplers constructed in accordance with our improvements; Fig. 2 is a bottom plan view of the same showing the draw heads slightly separated, with the hose and electric wire coupler shoes in a corresponding slightly separated position and adapted to swing transversely with respect to the draw heads into engagement with each other the hose and wire tubes being omitted; Fig. 3, a similar bottom plan view showing the draw heads connected in rigid relation to each other and the coupler shoes of the respective draw heads held in operative engagement; Fig. 4, a view in side elevation of a combined car, hose or fluid conduit, and electric wire coupler having a coupler shoe of the type shown in Figs. 16, 18, and 19, adapted to be used

on electric cars having air brakes, or having hose or fluid conduits to be connected, and showing a draw head rigidly connected with the draw bar, the latter being adapted to be pivotally connected with a car of the type used on electric railways; Fig. 5, a plan view of one of the improved couplers operatively connected with the ordinary car coupler of the Master Car Builder's type; Fig. 6, a horizontal sectional view on line 6—6 of Fig. 7; Fig. 7, a view in central vertical section taken on line 7 of Fig. 6, through the longitudinal center of the draw heads; Fig. 8, a transverse vertical sectional view taken on line 8 of Fig. 7, looking in the direction of the arrow; Fig. 9, an enlarged detail view in vertical section of one of the bosses with its spring pressed bolt for engaging the hose or electric coupler shoe of an adjacent draw head; Fig. 10, an enlarged detail view in section of a rear portion of a draw head, showing one of the spring pressed centering pins for holding the draw head yieldingly in central position; Fig. 11, an enlarged detail view in side elevation showing the outer side of a hose and electric wire coupler shoe of the form shown in Fig. 7, adapted to be used on cars to be propelled by steam or electricity or each alternately; Fig. 12, a view in side elevation showing the inner side of the coupler shoe shown in Figs. 3, 11 and 7; Fig. 13, an end view in elevation of the hose and electric wire coupler shoe shown in Fig. 12, with a portion in section showing the hose, fluid passage and cut-off valve, the latter being adapted to open and close all of the fluid passages; Fig. 14, a plan view of the coupler shoe shown in Figs. 3, 11, 12 and 13, showing the cut-off valve lever in full lines in position to close the fluid passages, and in dotted lines in position to open the same; Fig. 15, a horizontal sectional view taken on line 15 of Fig. 12; Fig. 16, an enlarged detail view in side elevation of a hose and electric coupler shoe such as is shown in Fig. 4, adapted to be used upon cars propelled by electric power and employing pressure fluid for operating the brakes or for any purpose; Fig. 17, a plan view of a pair of coupler shoes of the type shown in Fig. 16, showing the cut-off valve levers in position to open the fluid passages; Fig. 18, a horizontal sectional view of a pair of coupler shoes of the type shown in Figs. 4, 16 and 17; and Fig. 19, a plan view of a pair of coupler shoes of the type shown in Figs. 4 and 16 illustrating the relative movement of the shoes and cut-off valves respectively as the draw heads are moved endwise or longitudinally in diametrically opposite directions into and out or engagement with each other.

In the art to which this invention relates it is found in practice that coupler heads or draw heads having fluid passages in the head itself in fixed relation to the draw head, or having fluid passages or hose in movable relation to the draw head but movable into and out of engagement in the same direction with the draw head which carries the hose or fluid passage are objectionable for the reason that the movement of the draw heads produced by the great strains to which they are subjected permits or causes the connected pipes or passages to move in a similar manner with respect to each other or in the same direction with the draw heads in which they are located, thus causing leakage. This is particularly true when the hose or fluid passages to be connected are in or supported by the draw hooks or the mechanism which is subjected to the pulling strains and the buffer shocks of a connected train of railway cars, or the mechanism which connects the draw heads. Even when the draw heads or draw hooks are connected with the greatest possible degree of rigidity, if the fluid passages are moved into and out of engagement in the same direction with the draw heads, or if the passages or hose are movable into and out of engagement with each other in a direction parallel with the direction of the pulling strains and shocks of the connected cars, even though movable with respect to the draw-head and held yieldingly in engagement by springs, the vibration or longitudinal movements of the draw heads diminishes the pressure on the connected hose or passages and the shocks of coupling, the buffer shocks, and the pulling strains lessen or destroy the efficiency of the connection between the fluid passages or hose. In devices in which the direct action of springs is relied upon to hold the hose or coupler shoes in engagement, and particularly when the direction of movement of the connected fluid passages or the hose is longitudinal of the heads and parallel with the direction of the pulling strains and buffer shocks, it is found that the spring, in order to properly connect the fluid passages must be so heavy as to be cumbersome and interfere with the operation of the car coupler proper.

In couplers in which the draw heads are movable vertically, laterally or horizontally in any direction with respect to each other when connected, or in which the heads are movable laterally or vertically into and out of engagement, and in any devices wherein the draw heads are not held in practically rigid relation to each other in all directions when connected, the movement of the draw heads with respect to each other reduces or destroys the efficiency, strength, durability and security of the connection between the coupler shoes and the hose, fluid passages or electric wires supported and connected thereby.

In order to overcome or reduce to a mini-

mum the above objections and obtain other advantages in simplicity, strength, and durability of construction, facility and economy in operation, and in order to provide couplers which are adapted to be so strongly secured together that the connections between the coupler heads,—and the coupler heads themselves—will have greater strength than any other part of a connected train of railway cars and can be relied upon to materially support the end of a car in which the running gears have broken down and prevent the possibility of breakage of the connection between the hose or fluid passages at a point between the cut-off valves; and also in order to provide means whereby the automatic coupling of hose or fluid passages, electric wires and the cars may be accomplished in an efficient manner, we provide and employ in combination duplicate draw heads, connecting mechanism adapted to rigidly connect the draw heads in such a manner that practically absolutely no movement is possible between them in any direction, said draw heads being movable into and out of engagement with each other longitudinally or in a direction parallel with the pulling and buffer strains only, coupler shoes pivotally mounted on and movable transversely with respect to the draw heads or at angle with respect to the pulling strains and supported independently of the mechanism for connecting the draw heads,—each draw head being provided with a boss adapted to engage the coupler shoe of the adjacent draw head and move it transversely of and toward the longitudinal center of the draw heads without permitting the adjacent surfaces of the shoes to come into contact with each other until the hose, gaskets or fluid passages, or the electric conductors carried by said coupler shoes are first brought into engagement in such a manner as to prevent or reduce to a minimum all frictional movement between said parts. The movement of the coupler shoes and the hose and electric conductors carried thereby is at an angle with respect to the movement of the draw heads and is also at an angle with respect to the direction of the pulling and buffer strains and shocks, and the hose and electric wire coupler shoes are held in operative engagement by the rigidly connected draw heads so that leakage is prevented and both the fluid passages and the electric conductors are automatically connected and securely held in operative engagement.

In constructing a combined car, hose, and electric wire coupler or couplers in accordance with our improvements and equipping railway cars therewith, we provide a pair of couplers for each car, constructed in duplicate as follows: A draw head or plurality of draw heads 1 are provided, each preferably substantially or approximately rectangular in cross-section and each having on one side of its longitudinal center an end opening 2 and on its opposite side a tenon or draw hook 3 adapted to be moved into and out of a similar end opening or aperture of a duplicate draw head. The tenon or draw hook 3 of each draw head is preferably integral with the main body portion of the draw head and is adapted to enter and engage the top, bottom and side walls of the aperture or mortise 2 of a duplicate draw head, each draw head being provided with a longitudinal inner wall or guiding rib 4 which engages the inner side of the tenon or rigid draw bar of the other draw head. Each tenon or rigid draw hook is provided with a notch or lateral slot 5 in its inner side adapted to admit the knuckle of any ordinary Master Car-Builder's or Janney coupler and forming a hook 6 which serves as a draw hook for engaging such foreign or ordinary couplers which are of a different type from the coupler herein described. For the purpose of connecting the coupler heads herein described each tenon or rigid draw hook 3 is provided with a slot 7 in its outer side face, and the casing or main body portion of each head is also provided with one or more lateral openings or apertures 8 the top portion of which is located above the aperture 7 and the lower portion of which is below the level of the bottom of the aperture 7. There may be one or more of the latter, and they are preferably located substantially at the vertical center of the tenon or draw hook. Each draw head or casing is also provided on its opposite side, opposite the opening 8 and in position to register with the lateral slot or mortise 7 of the tenon of the adjacent draw head, with a lateral opening 9, the top, bottom and side walls of the slots 7 and the openings 9 being of corresponding dimensions and in alinement or flush when the draw heads are in engagement. In other words the openings 9 and slots or lateral mortises 7 are of the same area and conformation and are adapted to register.

Each draw head is provided with a laterally slidable latch bar 10 which is mounted in the upper portion of the casing in a transverse guiding slot 11 and has a depending portion on one side of the draw head. This lateral depending portion of each latch bar extends longitudinally of the main body portion of the draw head beyond the end of the latter and is provided with a vertical inwardly extending lug or catch 13 which is adapted to enter and is substantially of equal length with the opening 8 of the adjacent draw head. The forward edge of this catch is chamfered or beveled so as to slip past the chamfered or beveled edge 14 of the adjacent draw head and into engagement with the lateral slot 8 of the latter. The depending portion of the

latch bar 10 is also provided with another inwardly extending catch or dowel 15 which extends through the opening 9 and is of the same area in cross-section as the opening 9 in the casing and the slot 7 in the tenon or rigid draw hook. The catch or dowel 15 is thus adapted to enter the slot or lateral mortise of the rigid draw hook when the latter is inserted into its mortise or aperture 2. A spring 16 which is preferably in the form of a compressible spring encircling the latch bar, serves to throw the latter with its catches or latching lugs into locking position. The latch bar is provided with rack teeth or their equivalent on its inner side, as indicated by the reference numeral 17, and an uncoupling lever 18 is pivotally mounted by means of a horizontal pivot 19 on the inner side of the casing. The inner end of said lever is provided with a segmental rack 20, or equivalent element, in toothed engagement with the latch bar which is mounted in said draw head. (See Figs. 7 and 8.) The outer end of the lever extends out through the slot 8. The upward movement of the lever causes its rack to operate the latch bar of the same draw head in which the lever is mounted so as to withdraw the lug 15 of said latch bar from engagement with the tenon or rigid draw hook of the adjacent draw head, and also causes the latching lug 13 of said latch bar to be withdrawn from engagement with the slot 8 of the adjacent draw head. Mounted on the inner portion of said uncoupling lever is a laterally projecting pin or shoulder 21. This pin engages the latching lug 13 of the latch bar 10 of the adjacent draw head. The same movement of the lever above described causes this pin 21 to engage and move said locking lug 13 of the latch bar of said adjacent draw head out of the slot 8 and out of latching engagement with the draw head in which the lever is mounted, and by so moving said latch bar of said adjacent draw head the lug 15 of the latter is moved out of latching engagement with the tenon or rigid draw hook of the draw head in which the lever is mounted. It will thus be seen that the upward movement of the lever 18 of either draw head will operate both latch bars simultaneously, one of said latch bars being operated by the pin, and the other by the rack of said lever. A hand lever 22 in the form of a bail-like rod or crank shaft is pivotally mounted in supports 23 on and near the opposite sides of the car body. The bail or outer swinging portion 24 of this rod extends transversely across the end of the car. A chain 25, having its lower end connected with the lever 18, may be operatively connected with the bail or rod 24 by means of a ring 26 slidably mounted on the rod and connected with or forming a part of the chain, as shown in Fig. 4. The outer end of lever 18 is weighted, so that the latch bars 10 are operated by both gravity and spring pressure.

When the draw heads or couplers above described are to be used on elevated or electric roads they may, if desired, be rigidly connected with the draw bar 27, and the latter is adapted to be pivotally connected with the car and to swing transversely with respect to the latter in a supporting loop 28 or other support adapted to permit such transverse movement of the draw bar.

When the draw heads are to be used on steam railways, or on railway cars of any type, the necessary pivotal or laterally swinging connection between each coupler head and the car on which it is mounted may be provided in the form of vertical pivots or bolts 29 which extend through perforated tail pieces or portions 30 of the respective draw heads, said bolts being mounted between forked arms 31 and 32 of the draw bar having a space 33 therebetween adapted to permit vertical movement of each draw head with respect to the draw bar with which it is thus pivotally connected. A spring 34 encircling each bolt 29 yieldingly supports each draw head, and the top and bottom forward edges of the tenons or rigid draw hooks are chamfered or beveled as indicated in Fig. 4, the side edges being similarly chamfered as indicated in Figs. 6 and 7 so that when the draw heads come together the slightly tapered front ends of the tenons will readily enter the end openings or mortises of the respective draw heads and bring the latter into alinement when necessary.

Longitudinally movable centering pins 35 are mounted in sockets in the rear portion of each draw head on opposite sides thereof with their rear projecting ends in engagement with transverse flange or arm portions 36 of the draw bar, the inner ends of said pins being provided with compressible springs 37 adapted to hold the respective draw heads yieldingly in properly centered position.

Upon each draw head is mounted a coupler member or electric conductor and fluid passage coupler shoe 38 each of which is pivotally connected with the draw head which forms its support, by means of a vertical pivot or pintle 39 see Fig. 12 which is at or near the rear end of the shoe so as to permit the forward portion and central portion of the shoe, and in fact all parts thereof which are in advance of the pivotal center to swing transversely of the draw head toward and from the longitudinal center of the latter into and out of operative engagement with a similar adjacent shoe of another draw head, so that the movement of the coupler shoes or pivoted

fluid passage and electric wire couplers is substantially at right angles to the longitudinal center of the draw heads, and at right angles to the pulling strains and buffer strains to which the draw heads are subjected, and also at right angles to the direction of movement of the draw heads into and out of coupling or locked engagement with each other. It will also be noted that the direction of movement of the hose and electric-wire coupler shoes as they come into operative engagement is at right angles, or substantially at right angles or transverse to the direction of movement of the tenons and the mortises into which the latter fit, and that the direction of movement of the latch bars and their latching lugs or dowels as they enter the transverse openings or mortises in the casings and draw hooks or main longitudinal tenons respectively, is also transverse with respect to the main tenons and the direction of movement of the main tenons into their mortises, so that a rigid connection between the draw heads is afforded which prevents the movement of the draw heads in any direction with respect to each other when connected. The fluid passage and electric coupler members or hose and wire coupler shoes are thereby held securely in position to properly connect the fluid passages or hose and electric conductors hereinafter described, respectively.

Mounted on each draw head in position to engage the outer tapered forward end of the coupler shoe 38 of the adjacent draw head is a depending boss 65, the inner face of which is in oblique relation to the longitudinal center of the draw head and in position to engage the correspondingly tapered outer end or oblique outer face of such adjacent coupler shoe so as to positively move the shoe engaged by the boss toward the longitudinal center of the draw head and transversely of the latter into operative engagement with the coupler shoe 38 on the draw head which supports such boss. Each boss 65 is provided with an opening 66 in its inner oblique face (see Fig. 9) in which is mounted a slidable bolt 67 having a transverse elongated slot 68 through which extends a pin 69 for limiting the outward movement of the bolt. A spring 70 yieldingly holds the bolt in extended position, in which position it is adapted to engage the outer tapered or oblique face of the coupler shoe of the adjacent coupler head. These spring pressed bolts are thus adapted to absorb or minimize the shocks to which the coupler shoes are subjected and to take up or compensate for the wear upon the coupler shoes and bosses respectively and the gaskets and electric conductors connected thereby. The coupler shoes and the fluid passages and electric conductors are moved into and held in operative position by the engagement between the bosses and the outer oblique faces of the coupler shoes so that the proper connection of the fluid passages and electric conductors does not depend upon the action of the springs but depends upon the engagement of the shoes by the bosses, and upon the means for coupling and holding the draw heads in rigid relation to each other and thereby holding the bosses and coupler shoes in proper engagement. The positions and direction of movement of the coupler shoes, bosses, draw heads and connecting mechanism or latch bars enables the fluid passages and wires carried by the coupler shoes to be brought into and held in connected operative position without the necessity of the inner adjacent faces of the coupler shoes coming into contact or frictional engagement with each other, and in case said faces incidentally come into contact their direction of movement at the instant of coming into contact and their position while in contact is such that friction between the connected parts is reduced to a minimum, the gaskets or fluid passages and electric conductors hereinafter described are brought into engagement before the inner faces of the coupler shoes come into contact, or without such contact, premature and imperfect contact between the electric conductors and between the coupler shoes and the electric conductors is prevented, and the battering and wearing away of the parts and consequent imperfect connection and operation of the parts is also obviated.

Each of the coupler shoes 38 is provided with one or more fluid passages or hose pipes arranged in suitable position to be connected with fluid passages or hose of an adjacent coupler, and with any desired number of electric conductors adapted to be connected with a source of electric power or electric supply and with another electric conductor when desired. These hose and electric conductors may be arranged in the respective shoes in any desired order or position suitable to accomplish the purposes for which they are intended and are here shown in the preferred form for cars adapted to be propelled by steam or steam and electricity and having air brakes, and cars equipped to be propelled by electric power alone and having brakes provided with air pipes or fluid passages connected or to be connected with a source of fluid or air supply, respectively.

A hose pipe 42 is adapted to be connected with a source of supply of compressed air or fluid under pressure and with brake mechanism adapted to be operated by air or fluid pressure or by releasing such pressure, and, when connected with all of the other similar air pipes of a train of connected cars, forms a fluid passage which operatively connects all of the brakes of the train with the means

for operating them or for permitting the automatic operation of the brakes and stopping or controlling the speed of the train. An air pipe 43 is connected with the air signal, and like the pipe or hose 42, is adapted to be coupled by means of the coupler shoe and coupler mechanism above described. A hose pipe 45 is adapted to be used as a fluid passage for brine or other fluid or to be used as a speaking tube when empty.

A pipe 44 is adapted to be connected with a source of steam supply for heating the cars, or for any desired purpose.

Each coupler shoe is provided with a fluid passage for each hose pipe or with passages into which the respective hose pipes extend, and with corresponding gaskets 47 formed of rubber or other compressible material and encircling the inner ends or mouths of the respective pipes or fluid passages. The gaskets project beyond the inner or adjacent sides of the respective coupler shoes each in a position to engage and register with a corresponding gasket on the adjacent shoe before the side surfaces of the coupler shoes come into contact or frictional engagement with each other or with the gaskets.

The electric wires shown herein consist of a wire 48, adapted to supply current for the lights; wires 49 which are connected with a source of electric power and with the motor or motors for propelling the car or cars of the train; wire 50, which is adapted to be connected with telephones in the respective cars, as shown in Figs. 11, 12, 13 and 17, and with as many additional wires as may be required, as indicated in Fig. 16, for furnishing current for propelling the cars or for operating the electric pump whereby the air for operating the air brakes is supplied and kept under pressure. Each of the electric wires is provided with an enlarged contact piece or head 51 slidably mounted in a casing or socket 52 of insulating material such as wood or hard rubber, said insulating socket or sleeve being lined with metal if desired for the purpose of increasing the durability of the device and providing a suitable guide and support for the head 51. A spring 55 in the insulated socket engages the metallic contact head 51 and yieldingly holds it in extended position, and directly back of the insulating and guiding socket the coupler shoe is cored or bored out so as to provide a space 53 of greater diameter than the insulated wire and its covering 54 of insulating material. Inside of this space the wire is bent sufficiently, as shown in Fig. 14, so as to permit it to spring or bend back and forth with the contact head as may be required in order to maintain a perfect contact or connection. The electric wires extend at an oblique angle through the coupler shoe when the fluid passages and electric wires or contact heads are in the same vertical plane or in alinement, as shown in Figs. 11, 12, 14 and 15, in which the fluid passages extend straight through the coupler shoes. When the fluid passages are in the form shown in Figs. 16, 17, 18 and 19, the wires may extend directly through the shoes and between the passages.

In Fig. 13 and Fig. 15 the fluid passage is shown as extending straight through the coupler shoe, and the passages in this form are indicated by the reference numeral 56. In Figs. 16, 17, 18 and 19 the mouths of the fluid passages are on opposite sides of the electric conductors, and said passages consist of a main passage 57 which extends directly through the coupler shoe and a branch passage 58 which has its opening on the opposite side of the electric conductors in position to register with the mouth of the main passage 57 of an adjacent coupler shoe. When the passages are in this form both the main and branch passages are provided with gaskets 47 of flexible material.

Each coupler shoe is provided with a cut off valve 59 having an opening 60 for and adapted to register with each of the passages in the coupler shoe respectively. Each coupler shoe is provided with an aperture or space 61 adapted to permit the movement of the cut-off valve levers 63 from the positions shown in full lines in Figs. 14 and 19 in which the valves and the fluid passages controlled thereby are closed, to the positions shown in dotted lines in said figures, in which the valves and passages are open. Springs 62 are connected with the valve levers for returning the valves to passage closing position. These springs may be of any desired form.

When desired for the purpose of affording the necessary strength a bracket 40, secured to the draw head or casing by means of a bolt or bolts 41, or integral with the draw head, may engage and form a journal for the bottom end of the pivot or pintle 39, as shown in Fig. 7. The boss or bracket 40 is also adapted to serve to limit the movement of the coupler shoe 38 adjacent thereto when the latter is moved to open or outward position by the flexible element or elements—such for instance as the hose pipes 42, 43, 44 and 45.

The hose pipes are of flexible material and extend into the outer sides of the respective coupler shoes and into the respective fluid passages, each of said pipes being curved outward and rearward with respect to the coupler shoe and connected with the car body or a suitable support so as to form a flexible element or spring adapted to yieldingly hold the coupler shoes normally in their outermost position and constantly press them outward, but permit the coupler shoes to be moved inward into operative engagement with each other or into position

to connect the fluid passages and electric conductors respectively, without permitting the shoes to first come into contact or frictional engagement. Each hose pipe is provided at its lowermost point or portion, with a drip cock—not shown.

Each of the hose pipes above described may be provided with a branch pipe 71 each having a cut-off valve 72 therein, and having an ordinary pipe coupler 73 adapted to be used in the ordinary way when desired, or when the automatic coupling is impracticable.

As already suggested, the hose pipes, the ends of which are supported by the coupler shoes, are flexible and are so arranged that they yieldingly hold the coupler shoes apart by the tension or yielding outward pressure or pull of the flexible hose upon the coupler shoes. When the coupler shoes are uncoupled the flexible hose, or the tension or outward pressure or pull thereof upon the coupler shoes separates the latter so that there is no frictional engagement of the shoes before the connections of the fluid passages and electric conductors is made, and such undesirable frictional engagement of the shoes after the fluid passages and electric conductors in the act of uncoupling, and in fact at all times is likewise prevented by the tension of the flexible hose, which thus serve both as a spring or tension member or members and as a conduit or conduits. It will also be noted that by the above arrangement and construction of parts the fluid passages or pipes for conducting the fluid which operates the brakes are enabled to be automatically connected throughout a train of cars simultaneously with the making of the connection of the electric conductors for propelling the cars.

We claim:

1. In a device of the class described, the combination of a draw head, connecting mechanism adapted to connect said draw head with an adjacent draw head, a coupler shoe movably mounted on the draw head and supported independently of said connecting mechanism and adapted to be moved transversely with respect to the draw head, and an electric wire supported by said coupler shoe and movable therewith into engagement with an adjacent electric conductor.

2. In a device of the class described, the combination of a pair of draw heads, a coupler shoe pivotally mounted on each draw head, an electric conductor supported by and movable with each of said coupler shoes, means for insulating each electric conductor from its supporting shoe, and means for connecting said draw heads and thereby automatically connecting said electric conductors.

3. In a device of the class described, the combination of a pair of draw heads, a coupler shoe pivotally mounted on and movable transversely to and from the longitudinal center of each draw head, an electric conductor supported by each coupler shoe, means for insulating the electric conductor from the draw head, and means for connecting said draw heads.

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