W. S. LENNON.

CAR COUPLING.

APPLICATION FILED JULY 30, 1908.

939,720. Patented Nov. 9, 1909.

3 SHEETS—SHEET 1.

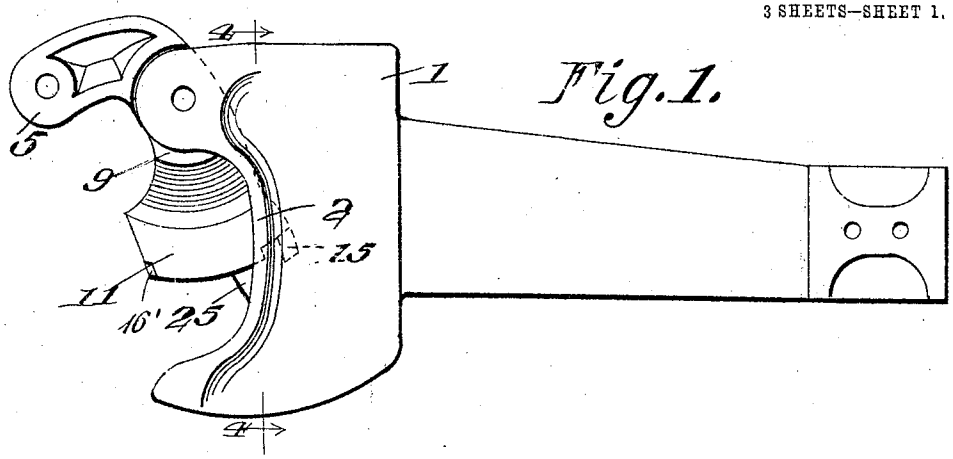


Fig. 1.

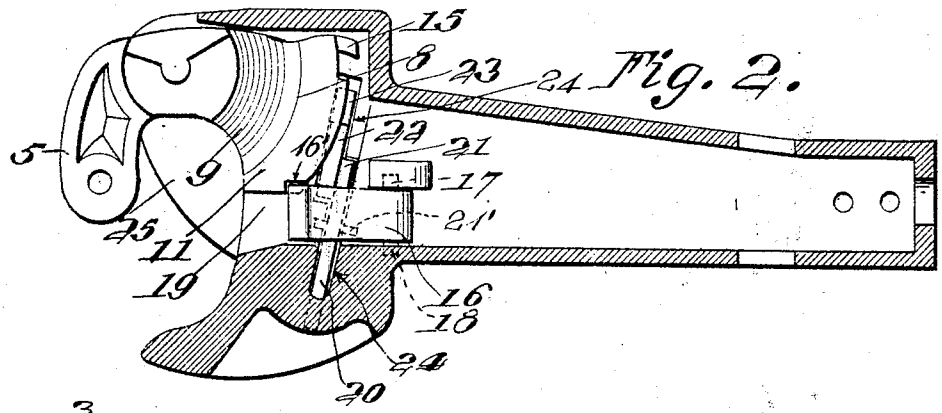


Fig. 2.

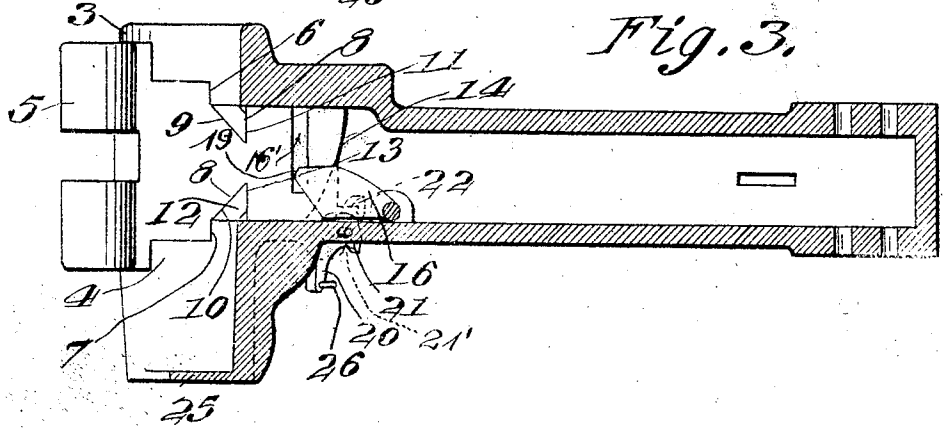


Fig. 3.

Witnesses

E. B. Brown.

C. N. Griesbauer

Inventor

W. S. Lennon,

By H. B. Williamson & Co

Attorneys

W. S. LENNON.

CAR COUPLING.

APPLICATION FILED JULY 30, 1908.

939,720. Patented Nov. 9, 1909.

3 SHEETS—SHEET 2.

Fig. 4.

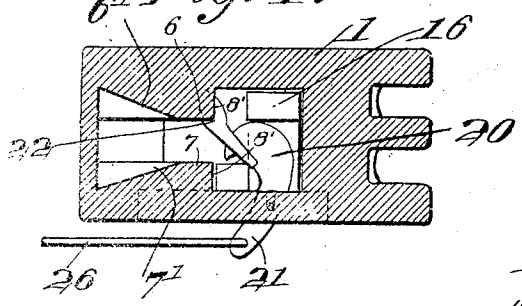


Fig. 5.

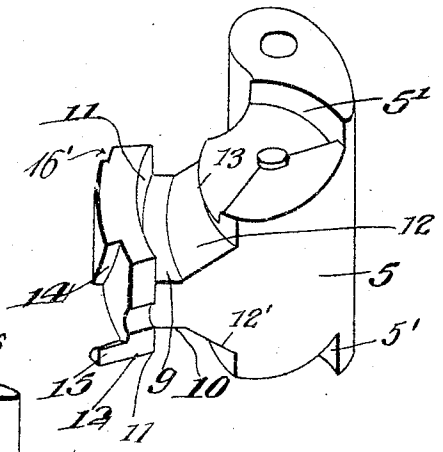


Fig. 6.

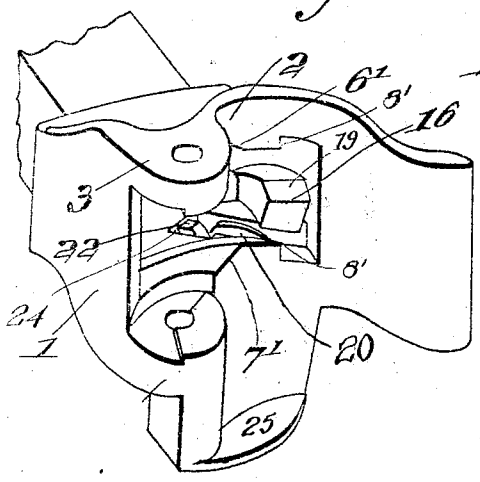
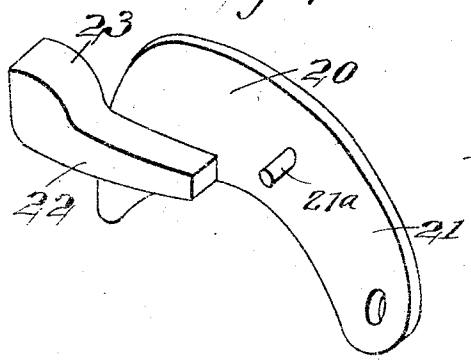


Fig. 7.



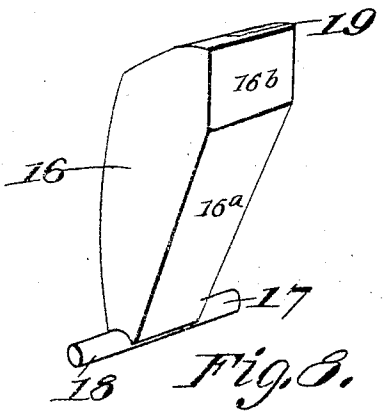


Fig. 8.

Witnesses
C. D. T. Brown.
E. F. Giesbauer.

Inventor
W. S. Lennon,
By A. B. Williamson & Co
Attorneys

W. S. LENNON.

CAR COUPLING.

APPLICATION FILED JULY 30, 1908.

939,720. Patented Nov. 9, 1909.

3 SHEETS—SHEET 3.

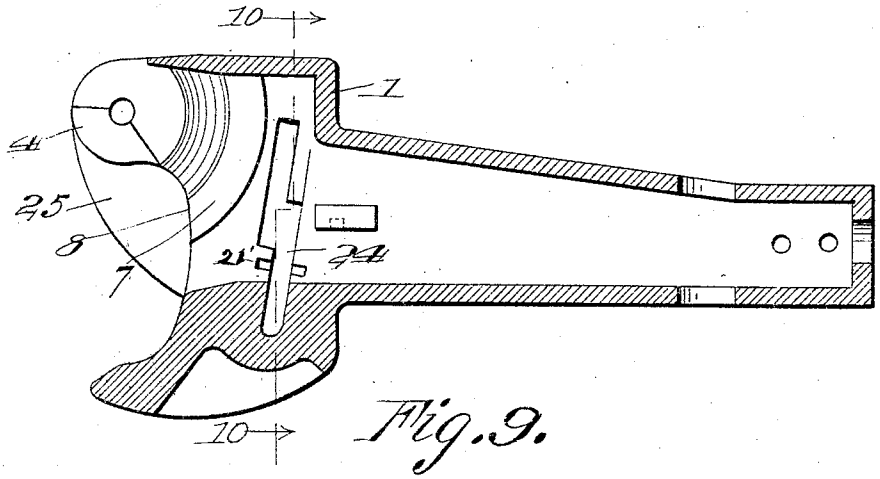
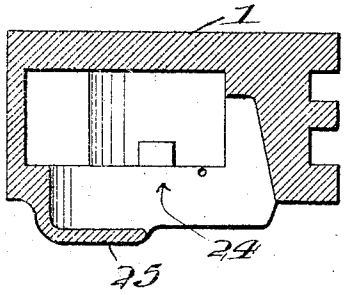


Fig. 9.

Fig. 10.



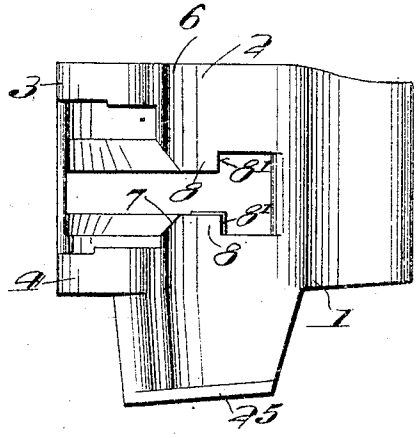


Fig. 11.

Witnesses
E. D. B. Brown.
E. F. Greshaw.

Inventor
W. S. Lennon.
by A. B. Wilson & Co.
Attorneys

UNITED STATES PATENT OFFICE.

WATSON S. LENNON, OF TUCSON, ARIZONA TERRITORY.

CAR-COUPLING.

939,720. Specification of Letters Patent. **Patented Nov. 9, 1909.**

Application filed July 30, 1908. Serial No. 446,144.

To all whom it may concern:

Be it known that I, WATSON S. LENNON, a citizen of the United States, residing at Tucson, in the county of Pima and Territory of Arizona, have invented certain new and useful Improvements in Car-Couplers; and I do 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.

This invention relates to automatically operated car couplers.

One object of the invention is to provide an automatic car coupler which may be operated without requiring the brakeman to pass between the cars, and which is simple in construction and efficient in operation.

Another object of the invention is to provide an automatic coupler which will be sleet and ice proof.

Another object is to provide a coupler of this class which may be easily coupled without excessive jamming when the cars are on a curve.

With these and other objects in view the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 represents a top plan view of a car coupler constructed in accordance with this invention; Fig. 2 is a horizontal sectional view thereof; Fig. 3 is a longitudinal vertical section; Fig. 4 is a vertical transverse section taken on the line 4—4 of Fig. 1; Fig. 5 is a perspective view of the knuckle detached; Fig. 6 is a perspective view taken from the end of the drawhead with the knuckle removed; Fig. 7 is a similar view of the operating member; Fig. 8 is a perspective view of the locking device detached; Fig. 9 is a horizontal sectional view through the drawhead with the knuckle and locking device removed; Fig. 10 is a vertical sectional view taken on the line 10—10 Fig. 9; and Fig. 11 is an end view taken from the front of the drawhead with the knuckle removed and the locking device in operative position therein.

In the embodiment illustrated a drawhead, 1, is shown having a buffer, 2, a pair of vertical spaced ears, 3 and 4, adapted to receive therebetween a knuckle or coupling member, 5, of the pinless type. The buffer, 2, may be omitted when the coupler is to be used upon passenger cars, but is used if desirable for freight cars.

The drawhead, 1, is made hollow and is provided with a pair of opposite arcuate lugs or ribs, 6 and 7, having beveled faces 6′ and 7′ to form an outwardly flared slot-like opening for the reception of one end of the knuckle 5, hereinafter described. These ribs 6 and 7 terminate at their outer sides in vertically disposed shoulders as 8 which are curved laterally and inwardly and the inner sides of said ribs terminate in vertically disposed shoulders as 8′ which are curved laterally outward and in connection with the shoulders 8 form the rib-like upper and lower guides 6 and 7 for the knuckle 5, in its lateral swinging movement.

The rear end of the knuckle, 5, shown in detail in Fig. 5, is provided on its upper and lower faces with curved recesses, 9, and 10, extending the entire width of the knuckle and having arc-shaped shoulders, as 11, forming the outer walls thereof, the bottom 12, and 12′ of said recesses 9, and 10, being inclined inwardly in opposite directions and curved laterally to adapt them to fit the inclined or beveled faces, 6′ and 7′ of the drawhead. Vertically disposed shoulders as 13 form the inner walls of said recesses, 9 and 10, and are curved laterally outward to correspond with the curvature of the shoulders 8 of the drawhead with which they are adapted to engage; the outer shoulders 11 of the knuckle engage the inner shoulders 8′ of the head, and the beveled faces 12, and 12′ are in operative engagement with the correspondingly beveled faces 6′ and 7′ of the drawhead lugs or ribs 6 and 7. The knuckle, 5, is also provided on its upper and lower faces near its front end with laterally curved concave shoulders as 5′ for coöperation with the edges of the curved ends of the ears 3, and 4. The face of the rear end of this knuckle 5 is provided with a cam member preferably formed by cutting out a portion of said face to form a diagonally disposed shoulder 14 extending from the lower inner end of said face to its outer upper end, said shoulder being curved slightly outward longitudinally toward its upper end. At the

lower outer corner of said rear knuckle face is formed a stop lug, 15, projecting in a longitudinal direction for a purpose to be described. The rear face of the knuckle 5 is also provided at its inner end with an angular recess 16′ which extends preferably about three-fourths of the height of the knuckle terminating near the lower face thereof in a stop or shoulder—see Fig. 3. A locking element 16 is pivotally mounted in the drawhead, 1, in position to swing into the path of the rear end of said knuckle, 5, to lock the knuckle in operative position. This member, 16, is preferably constructed as shown in Fig. 8 in the form of a wedge-like block with integral studs, 17 and 18, extending laterally from opposite sides of its small end and which are designed to operate in bearings in said head, 1, to provide for the pivotal movement of said member, 16. The large free end of said member, 16, is made sufficiently heavy to cause it to drop by gravity into locking position to engage the recess 16′ in the knuckle 5 when released from the operating lever. The lower lever-engaging face 16^a of this block is preferably made straight with its outer end beveled at 16^b and the upper face at its outer end is preferably flattened or beveled at 19 to permit it to rest against the upper wall of the hollow drawhead, 1, when raised into inoperative position, and also to serve as a stop for member 16.

An operating member, 20, is pivotally mounted to swing vertically in open bearings 21′—see Figs. 2 and 9 within said drawhead, 1, and is preferably constructed as shown in Fig. 7 in the form of an approximately elbow-shaped lever 21, having curved upper and lower edges with one end preferably made wider than the other and having an arm, 22, projecting laterally from one side of said lever, 21, and which extends longitudinally beyond the end thereof. This arm, 22, has an upturned free end provided with a slightly convexed upper face, 23, which is designed to engage the cam-like shoulder 14 on the rear end of the knuckle, 5, and when the arm, 22, is swung upwardly on the actuation of the lever the convexed face, 23, thereof engages the cam 14 of the knuckle end forces said end forward and opens the knuckle. The lug, 15, on the outward swinging of the knuckle comes in contact with the lower face of the arm, 22, and the end of the lever, 21, and holds the knuckle against accidental disconnection from the drawhead. This lug, 15, preferably has its inner face curved and when the free end of the arm, 22, is forced thereagainst causes the knuckle to move inward into operative or locking position. A slot, 24, extends transversely of the lower face of the drawhead in which the arm, 22, is designed to be housed when not in use and which when so housed will permit the knuckle to be swung forward and disconnected from the drawhead when desired.

It will be observed that the heavy free end of the block, 16, causes it to normally fall by gravity between the rear face of the knuckle, 5, and the adjacent side wall of the drawhead whereby said knuckle is locked in operative position and when the free end of the lever, 21, is raised it passes under the lower face of the block, 16, whereby said block is raised and held in elevated position and the arm, 22, simultaneously engages the cam member on the face of the knuckle, 5, and forces said face forward while the block, 16, is held out of its path, said knuckle thus assuming an open position and when the knuckle is closed the free end of the block, 16, will drop downward to lock said knuckle in closed position.

The lower part of the drawhead, 1, and the ear, 4, are provided with a horizontally extending plate, 25, forming a pocket to catch the knuckle of the other drawhead should said knuckle for any reason become detached from the car. This pocket serves to prevent the coupling member from falling upon the track and causing a serious accident.

In the operation of this device the coupler being locked in closed position, to release it, it is necessary to pull upon a rod, 26, connected with the lever, 21, which causes the free end of said lever to swing upwardly and raise the block, 16, and immediately thereafter the arm, 22, engages the cam member of the knuckle and swings said knuckle into open position, thus uncoupling the cars.

To couple the cars, the knuckles being in open position it is necessary only to jam them together when the knuckles will engage with each other and the blocks, 16, will drop down by gravity and lock said knuckles in operative position.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention as defined in the appended claims.

I claim as my invention:—

1. In a car coupler the combination of a hollow drawhead a knuckle mounted to swing laterally therein, the inner free end of said knuckle being provided with a face adapted to lie opposite one face of said hollow drawhead when in operative position, a locking member constructed to lie between said faces when the knuckle is in closed posi-

tion and means operable in one direction for moving said locking member out of the path of said knuckle and to swing said knuckle into open position and operable in the other direction to close said knuckle.

2. In a car coupler, the combination of a hollow drawhead a knuckle mounted to swing laterally therein and having its inner free end spaced from the side wall of said hollow drawhead when the knuckle is in closed position, a locking block mounted to lie between the free end of the knuckle and the side wall of the drawhead and a vertically movable lever for releasing said block and swinging said knuckle into open or closed position.

3. In a car coupler the combination of a hollow drawhead provided at one side with vertically spaced arcuate shoulders extending a portion of the width of the head, the lower wall or bottom of said head having a recess arranged adjacent the lower arcuate shoulder, the lower wall of said recess having an aperture therein, a lever fulcrumed intermediately of its ends at the inner end of said recess with one end projecting through said aperture and the other end housed normally within said recess and a knuckle mounted to swing laterally in said drawhead and provided at its inner end with vertically spaced arcuate shoulders for engagement with the shoulders of the drawhead to form guides for said knuckle and prevent its accidental disengagement and a cam arranged on the rear face of said knuckle for engagement by said lever to provide for the opening of the knuckle.

4. In a car coupler the combination of a hollow drawhead provided at one side with vertically spaced arcuate shoulders extending a portion of the width of the head, the lower wall or bottom of said head having a recess arranged adjacent the lower arcuate shoulder the lower wall of said recess having an aperture therein, a lever fulcrumed intermediately of its ends at the inner end of said recess with one end projecting through said aperture and the other end housed normally within said recess and a knuckle mounted to swing laterally in said drawhead and provided at its inner end with vertically spaced arcuate shoulders for engagement with the shoulders of the drawhead to form guides for said knuckle and prevent accidental disengagement, a cam arranged diagonally on the rear face of said knuckle for engagement by said lever to move the knuckle into open position and means carried by said knuckle for engagement by said lever for throwing said knuckle into closed position.

5. In a car coupler the combination of a hollow drawhead provided at one side with vertically spaced arcuate shoulders extending a portion of the width of the head, the lower wall or bottom of said head having a recess arranged adjacent the lower arcuate shoulder, the lower wall of said recess having an aperture therein, a lever fulcrumed intermediately of its ends at the inner end of said recess with one end projecting through said aperture and the other end housed normally within said recess and a knuckle mounted to swing laterally in said drawhead and provided at its inner end with vertically spaced arcuate shoulders for engagement with the shoulders of the drawhead to form guides for said knuckle and prevent its accidental disengagement, a cam extending diagonally across the rear face of said knuckle for engagement by said lever to open the knuckle on the movement of said lever in one direction and a stop on said knuckle for engagement by said lever when moved in the other direction to close said knuckle.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WATSON S. LENNON.

Witnesses:
BENTON DICY,
LOUIS S. ARNOLD.