W. A. SHORTER.

CAR COUPLING.

APPLICATION FILED FEB. 5, 1912.

1,042,288.

Patented Oct. 22, 1912.

2 SHEETS—SHEET 1.

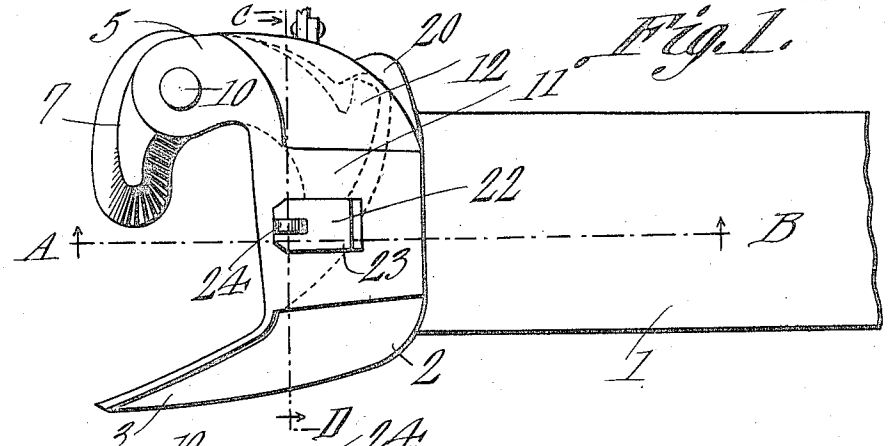

Fig. 1.

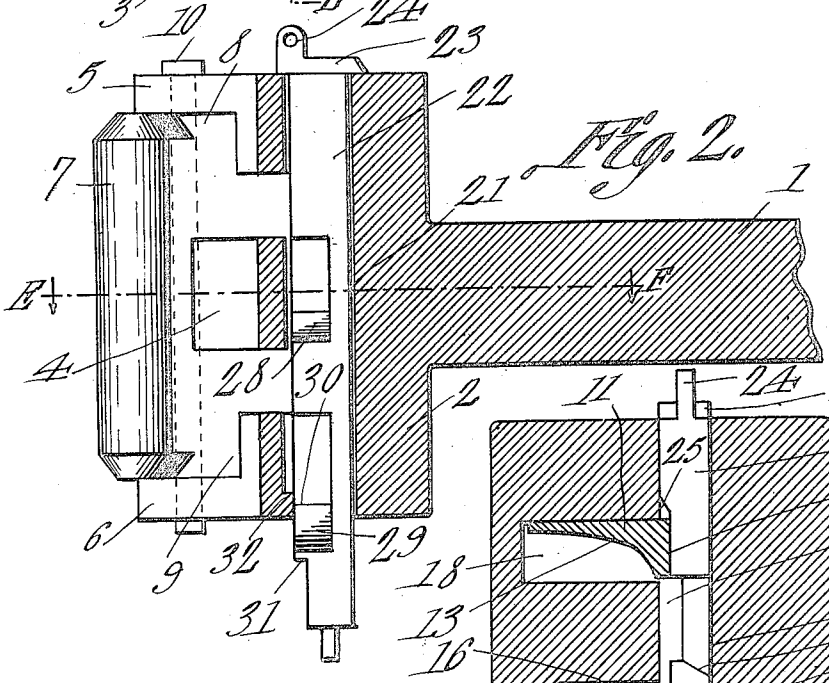

Fig. 2.

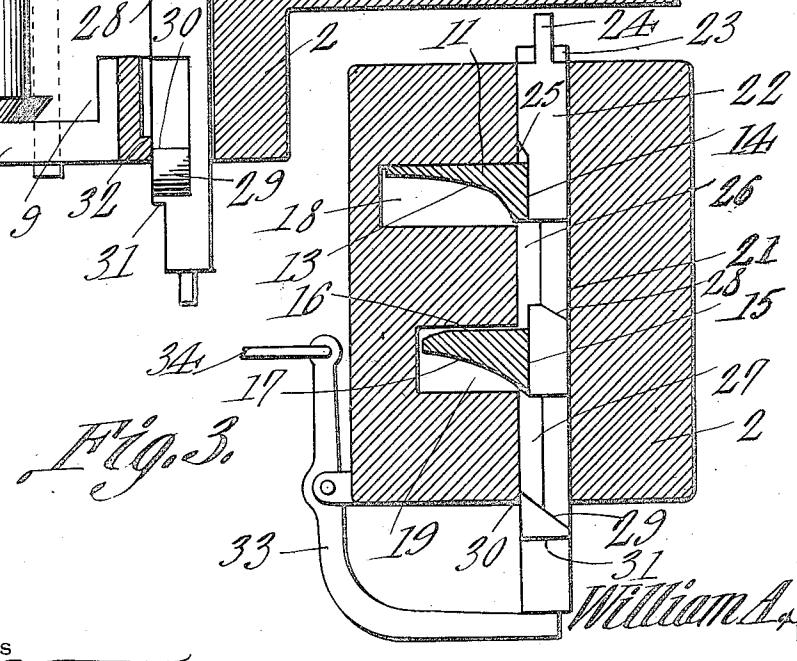

Fig. 3.

Witnesses

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2 SHEETS—SHEET 2.

Fig. 5.

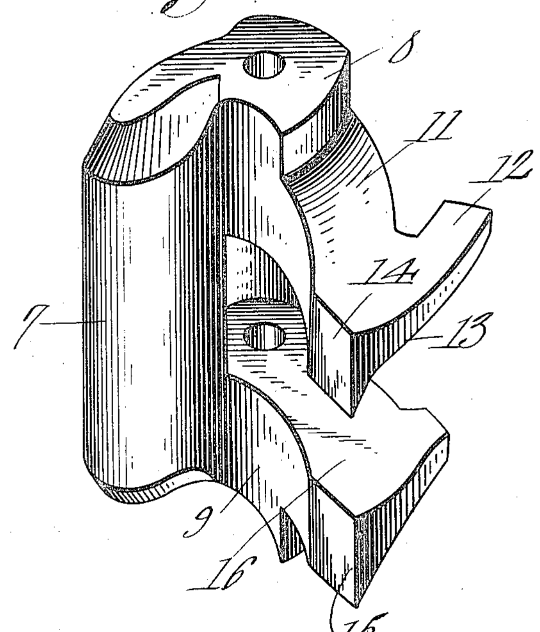
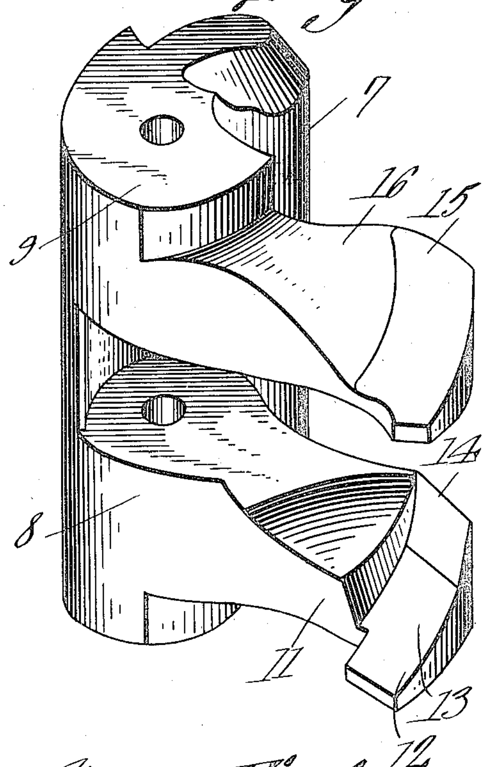


Fig. 6.



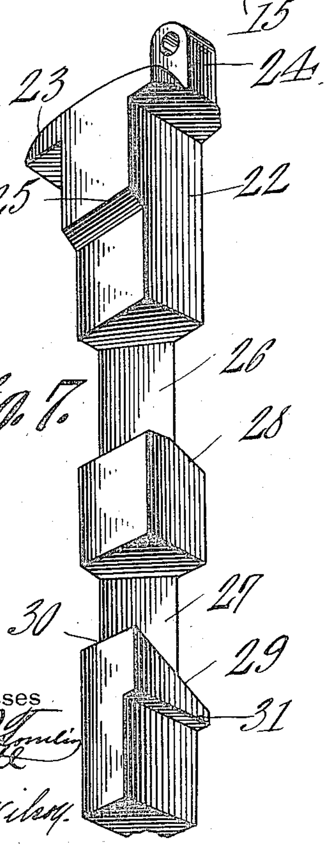
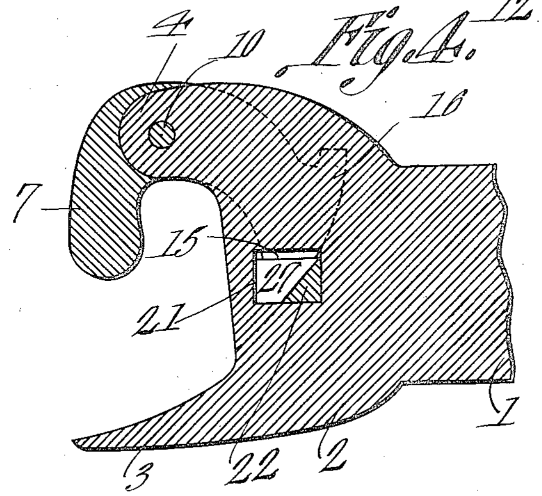


Fig. 7.

Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

1,042,288. Specification of Letters Patent. Patented Oct. 22, 1912.

Application filed February 5, 1912. Serial No. 675,470.

To all whom it may concern:

Be it known that I, WILLIAM A. SHORTER, a citizen of the United States, residing at Princeton, in the county of Mercer and State of West Virginia, have invented a new and useful Car-Coupler, of which the following is a specification.

This invention relates to car couplers of the Janney type, the principal object of the invention being to provide a coupler made up solely of a head, a knuckle and pin, the said pin constituting means for locking the knuckle in engaging position and also constituting means for kicking the knuckle to open position, thereby dispensing with the kicking lever such as ordinarily provided for this purpose.

Another object is to provide a knuckle and a coupling pin having coöperating means whereby complete withdrawal of the pin from the head is prevented.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—Figure 1 is a plan view of the coupler. Fig. 2 is a section on line A—B Fig. 1. Fig. 3 is a section on line C—D Fig. 1. Fig. 4 is a section on line E—F Fig. 2. Fig. 5 is a perspective view of the knuckle. Fig. 6 is an enlarged perspective view of the knuckle inverted. Fig. 7 is a perspective view of the coupling pin.

Referring to the figures by characters of reference 1 designates a draw bar having a draw head 2 provided at one side with a horn 3 and at its other side with a central ear 4 and upper and lower ears 5 and 6. A knuckle 7 is pivotally connected to the ears 4, 5 and 6, this knuckle being formed with upper and lower ears 8 and 9 which fit snugly between the ears 4, 5 and 6 and are held to them by a pivot pin 10. A curved tail 11 extends from the upper ear 8 and is provided, at its free end, with a laterally extending curved arm 12. The lower face of this arm merges into the lower face of the tail 11 and forms a cam face 13, inclined upwardly toward the free end of the arm 12. This face is preferably shaped as clearly indicated in Fig. 3. That side of the tail 11 opposite the arm 12 is flattened so as to form an abutment 14. This abutment is disposed in alinement with a similar abutment 15 formed at one side of a tail 16 extending from the ear 9. The lower face of tail 16 is inclined upwardly away from the abutment 15 and is preferably slightly concaved, as indicated at 17 in Fig. 3.

Upper and lower recesses 18 and 19 are formed in the head 2 and open into the space formed between the horn 3 and the knuckle 7, the recess 18 being adapted to receive tail 11 and its arm 12 while recess 19 is adapted to receive the tail 16. In order that recess 18 may be sufficiently long to receive arm 12, an enlargement 20 is preferably formed on one side of the head 2, as shown in Fig. 1.

The recess 18 is spaced from the recess 19 and communicates therewith solely through a rectangular opening 21 extending through the head 2 from the top to the bottom thereof. This opening is adapted to receive the coupling pin which has been illustrated in detail in Fig. 7. Said pin which has been indicated generally at 22, is rectangular in transverse contour and is provided at its upper end with a head 23 adapted to bear normally on the top face of the head 2. This pin head 23 has an ear 24 upstanding therefrom and to which a chain or the like may be connected for the purpose of lifting the pin out of normal position. A shoulder 25 is formed along one side of the pin 22 and extends outwardly therefrom adjacent the head 23, this shoulder constituting means for engaging the top of the head 2 when the pin is partly elevated so as to release the tails 11 and 16. Upper and lower recesses 26 and 27 are formed within the pin 22 below shoulder 25 and are extended diagonally across the pin. The lower wall of the upper recess 26 is beveled trans-

versely, as indicated at 28 so as to form a means for engaging the cam face 13 when the pin is elevated, thereby to shift said cam and the tail 11 laterally and cause the knuckle to swing to open position. The lower face of the other recess 27 is also beveled transversely as indicated at 29, the extent of this beveled surface being greater than that of the surface 28 and the beveled surface 29 projects outwardly to a point substantially in alinement with the outer edge of the shoulder 25 hereinbefore referred to.

The lower end portion of the pin is cut away upon its front face to form an outstanding transverse shoulder 31. This shoulder is designed, when the pin is partly raised, to move forward and to rest on a shoulder or ledge 32 formed within the lower portion of the opening 21 in which the pin 22 is mounted. That portion of the opening 21 between the ledge 32 and the lower recess 19 is of greater area from front to rear than the remaining portions of the opening so as to permit a slight forward tilting of the pin.

It is to be understood that the depth of the recesses 26 and 27 is such as to permit the tails 11 and 16 to move freely therethrough when the pin is elevated and positioned with its shoulder 25 in contact with the top face of the head 2. With the parts thus located it will be seen that a pull on the knuckle 7 will cause the tails 11 and 16 to swing forwardly within the recesses 18 and 19 and through the recesses 26 and 27, the opening movement of the knuckle being limited by said knuckle coming into contact with the outer edges of those portions of head 2 between the ears 4, 5 and 6. If the pin has been shifted laterally so as to cause shoulder 25 to bear downwardly on the top of the head 2, said pin will be pushed laterally by the tails 11 and 16 while swinging forward and the shoulder will thus be disengaged from the head and the pin permitted to drop until the upper wall of recess 26 comes into contact with the upper tail 11 or its arm 12. Under some conditions, however, the pin can be held supported by the shoulder 31 contacting with the ledge 32, this position of the pin being obtained by tilting the lower end thereof forward while the pin is being elevated. Should shoulder 31 be in contact with ledge 32 the tails 11 and 16 will, during their forward movement, press the pin backwardly so as to disengage shoulder 31 from the ledge and thus permit the upper wall of recess 26 to move downward onto the tail 11. With the pin thus elevated the device is ready for use in coupling. During the coupling operation the tails 11 and 16 will be forced back into the recesses 18 and 19 and through the recesses 26 and 27 and as soon as these tails pass through the last-named recesses the pin will drop by gravity. This will bring one side of the pin in the path of the abutments 14 and 15 and it will thus be seen that the knuckle cannot be opened by any pull that may be exerted thereon.

When it is desired to uncouple, the pin 22 is pulled upwardly. The recesses 26 and 27 are thus brought opposite the abutments 14 and 15 and the outwardly projecting end portion 30 of the lower wall of recess 27 engages one end portion of the cam face 17. Said cam face and the tail 16 are thus shifted about the pin 10 as an axis and the cam face 13 on the upper tail is thus brought into the path of the beveled face 28 which engages it and further assists in swinging the two tails 11 and 16 so as to move the knuckle to open position. The recesses 26 and 27 are of course sufficiently long to permit longitudinal movement of the pin while the tails are swinging through the recesses. As soon as the knuckle has been swung outwardly the pin can be released and the upper wall of the recess 26 will bear downwardly on the arm 12 so as to support the pin.

From the foregoing description it will be seen that aside from the pivot pin 10 the entire coupler is formed of but three parts, to wit, the head, the knuckle, and the coupling pin. Furthermore it will be seen that these three parts are all that are necessary to kick the knuckle to open position and to lock the knuckle when closed.

Instead of elevating the pin 22 by pulling upwardly thereon through a chain or the like, a lever, such as has been illustrated at 33 in Fig. 3 can be fulcrumed on one side of the head 2, the lower arm of this lever being curved under the head and under the lower end of the pin 22 while the other arm is extended upwardly and is connected to an actuating rod 34 extending laterally from the head 2. Obviously, therefore, when the upper arm of the lever 33 is pulled by means of rod 34, the lower arm of the lever will push upwardly on the pin 22.

What is claimed is:—

1. A coupler including a head, a knuckle, superposed tail pieces extending from the knuckle, each of said tail pieces having a cam face, and a coupling pin having spaced portions adapted successively to engage the respective cam faces to impart successive impulses to the knuckle to open it during the elevation of the pin.

2. A coupler including a head, a knuckle, upper and lower tail pieces extending from the knuckle and into the head, a locking pin normally seated in the paths of the tail pieces to hold the knuckle in closed position, said pin having recesses to receive the tail pieces when the pin is shifted out of normal

position, said tail pieces having cam faces, one wall of each recess being adapted to engage one of the cam faces, said walls and cam faces coöperating to impart successive impulses to the knuckle to open it during the elevation of the pin out of locking position.

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

WILLIAM A. SHORTER.

Witnesses:

SELINA WILLSON,

HERBERT D. LAWSON.