

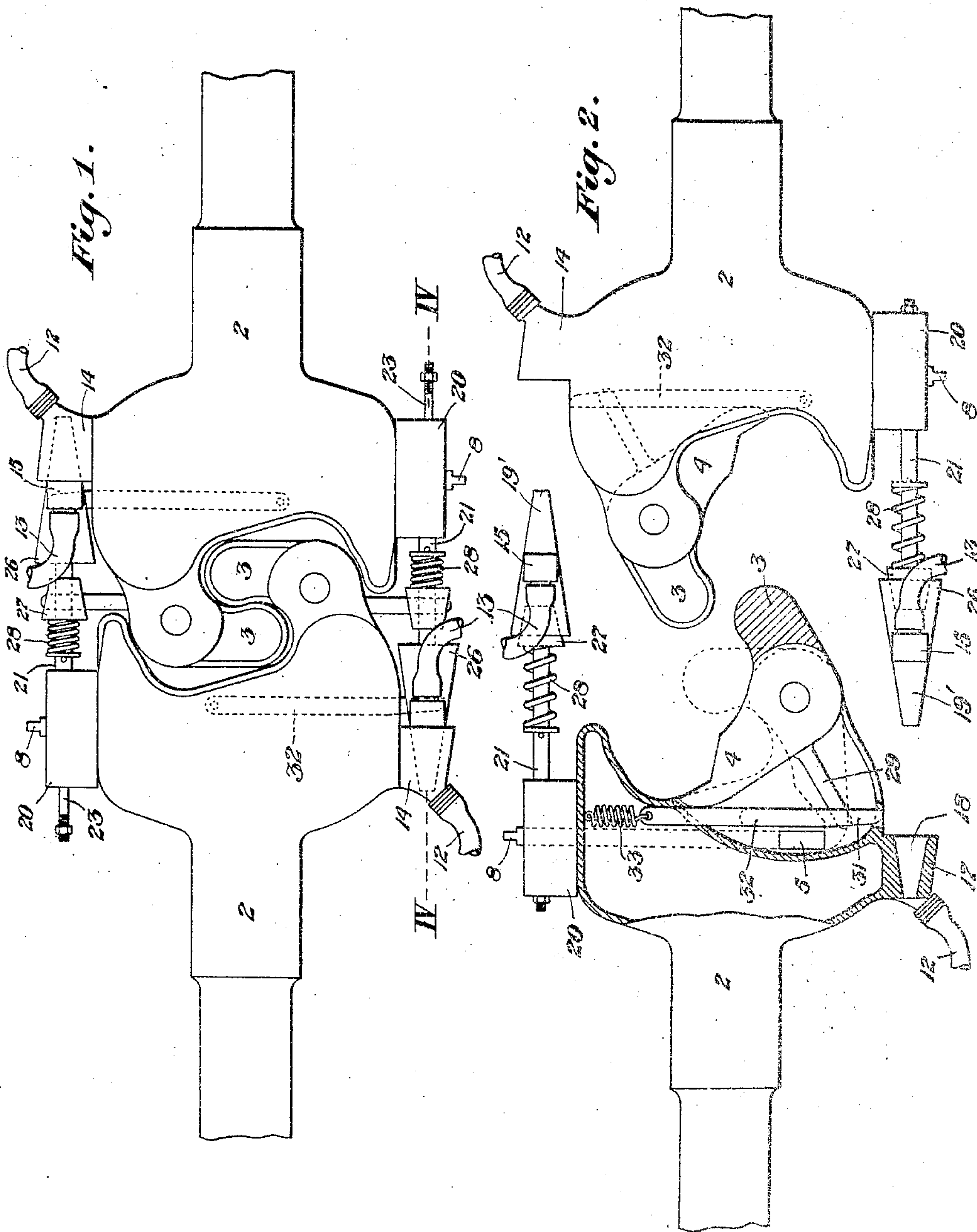
W. D. LEFTWICH.  
COUPLING MECHANISM.

APPLICATION FILED JAN. 11, 1909.

Patented Nov. 16, 1909.

2 SHEETS—SHEET 1.

940,334.



Witnesses:  
Chas. S. Spley  
Henry Sons.

Inventor:  
William D. Leftwich  
by C. M. Clarke  
his attorney

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2 SHEETS—SHEET 2.

Fig. 3.

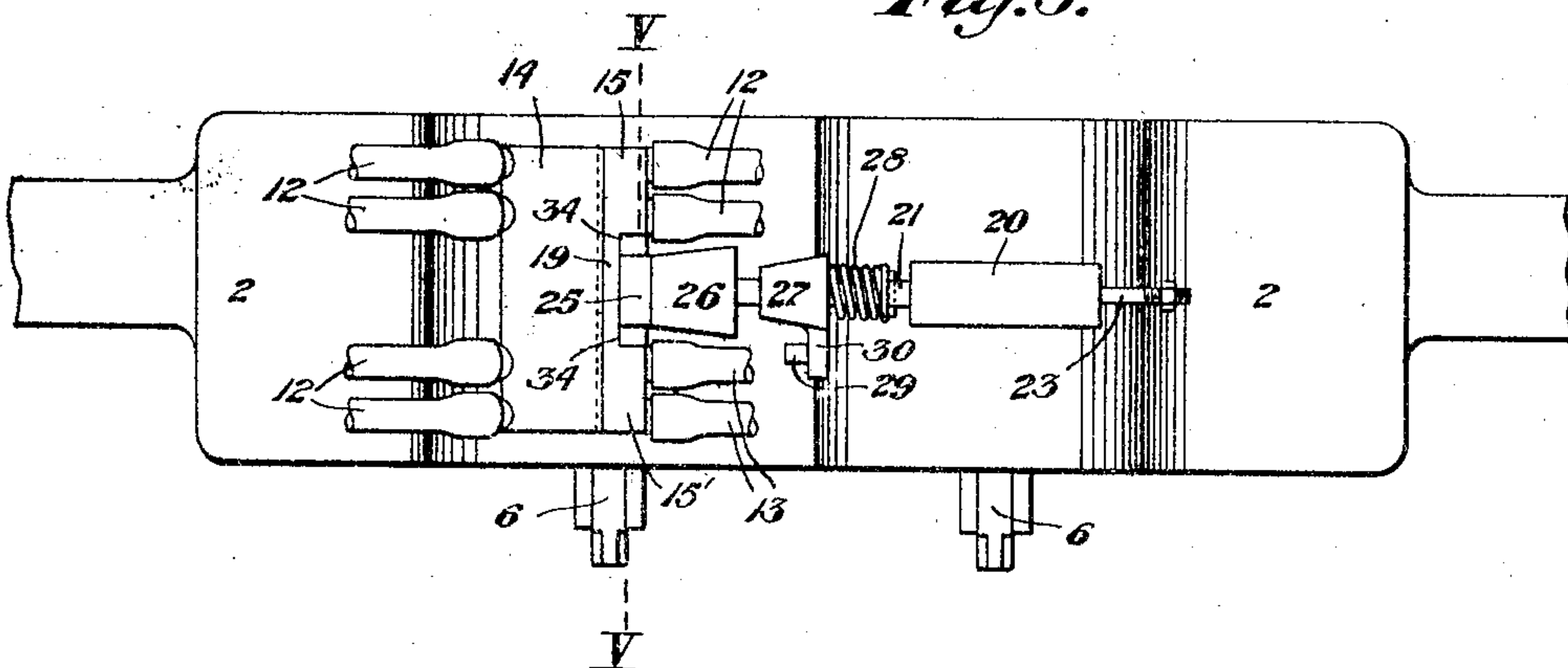


Fig. 6.

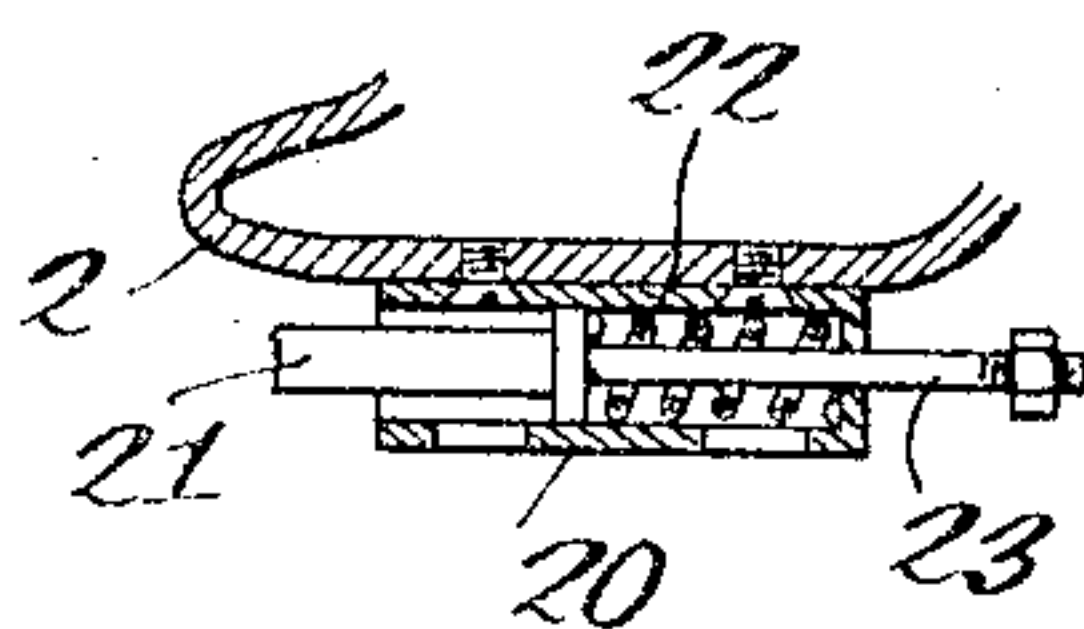


Fig. 4.

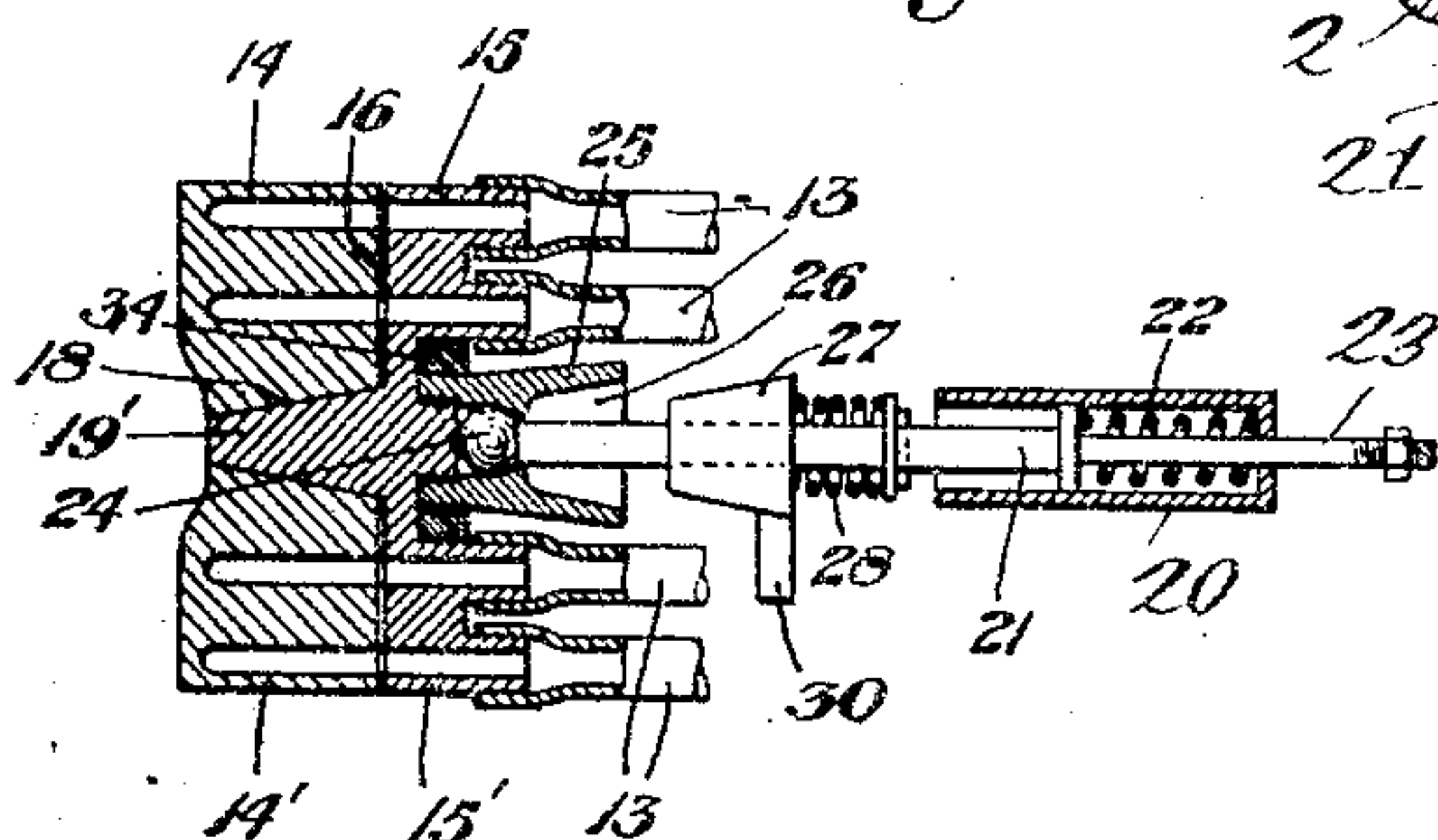
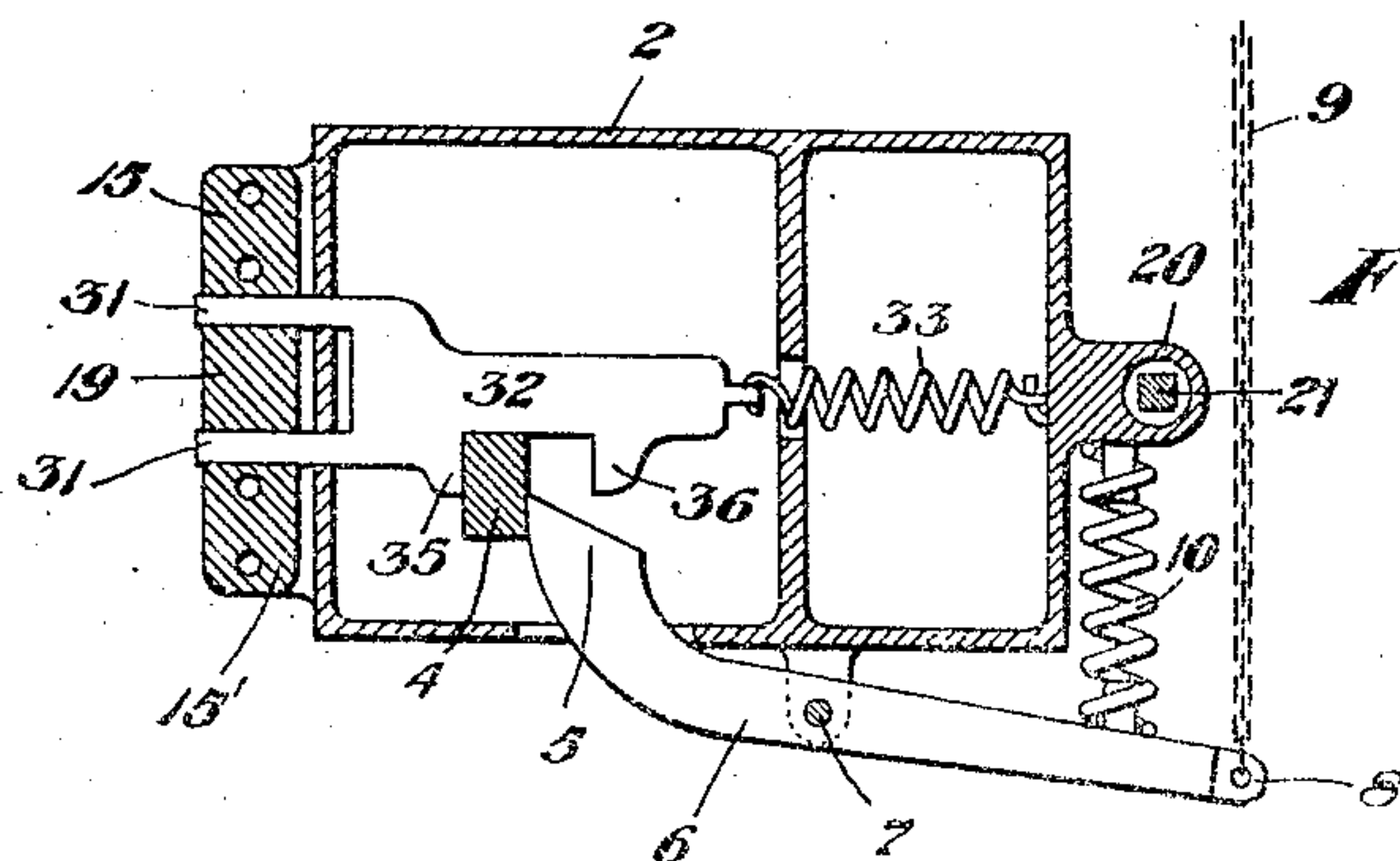


Fig. 5.



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# UNITED STATES PATENT OFFICE.

WILLIAM D. LEFTWICH, OF WILKINSBURG, PENNSYLVANIA.

## COUPLING MECHANISM.

940,334.

Specification of Letters Patent.

Patented Nov. 16, 1909.

Application filed January 11, 1909. Serial No. 471,725.

To all whom it may concern:

Be it known that I, WILLIAM D. LEFTWICH, a citizen of the United States, residing at Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Coupling Mechanism, of which the following is a specification, reference being had therein to the accompanying drawing.

My invention refers to improvements in couplers and is designed for the purpose of providing a car coupler with supplemental coupling mechanism for the hose terminals of the air supply or steam supply of the brake or heating system of a train, or for any other desired fluid connections, so constructed as to accomplish automatic coupling and uncoupling of the hose terminals, simultaneously with the coupling and uncoupling of the cars.

The present invention relates particularly to the mounting of the coupling terminals, the locking mechanism therefor, the means for holding the coupler terminal extended and for providing flexibility in its support after the main couplers are connected, and other features of improvement as shall be more fully hereinafter described.

In the accompanying drawings illustrating the invention:—Figure 1 is a plan view of the apparatus showing the coupling jaws and hose terminals connected for operation. Fig. 2 is a similar view showing the parts separated and about to be coupled together one of the coupler heads being shown in horizontal section. Fig. 3 is a side elevation of Fig. 1. Fig. 4 is a vertical sectional view on the line IV. IV. of Fig. 1. Fig. 5 is a cross sectional view on the line V. V. of Fig. 3. Fig. 6 is a horizontal sectional view through the spring housing at right angles to Fig. 4, showing it secured to the coupling head.

In the drawings 2, 2, represent the coupling heads of a standard coupler of the Janney type, of well known construction, provided with pivoted jaws 3, 3, for automatic interlocking engagement, each of said jaws being provided with the inner arm 4 adapted in the locking position to be engaged and held by the inner end 5 of lever 6. Said lever extends transversely of each coupling head 2 and is pivotally mounted at 7 having a terminal 8 extending outwardly at one side and adapted to be raised by any suitable connection 9 against the

pressure of spring 10. Said spring is interposed between the outer end of lever 6 and any suitable supporting abutment, as housing 20, by which arrangement the locking terminal 5 of arm 6 will automatically engage in front of the inner end of arm 4 to hold the coupling jaw in locking position after the couplers have been brought together, as will be readily understood.

12, 13, represent the terminal ends of the hose of an air brake steam system or any other hose connections which it may be desired to use, a plurality of such hose connections, (four at each side of the coupler head, two above and two below the hose coupling mechanism respectively being shown) and incorporated in connected sets at each side of the main couplers. The hose terminals 12 above and below are connected with abutting terminals 14, 14' respectively, the other hose sections 13 being connected with similar abutting terminals 15, 15' respectively, mounted on each of the coupling heads in such a position as to be brought into abutting contact when the coupling heads are together, as shown in Fig. 4. It will be understood that the terminals 14, 14' and 15 and 15' are hollow as shown to provide registering continuations with each other and with their respective hose connections.

Each coupling head 2 is provided at one side with such a coupling abutment 14, 14', and a coupling abutment 15, 15', at the other side, so arranged that when the car couplers are connected, the fluid coupling abutments will make contact at each side as shown in Figs. 1 and 4. For the purpose of insuring tight communicating contact one or the other of said abutments, as abutment 14, 14', is provided with a packing gasket 16 of rubber or other suitable resilient material whereby a tight joint is secured when the abutting faces of the companion abutment of the other coupler is brought into contact. Abutments 14, 14', are preferably rigidly attached to or made integral with the coupling head 2 as shown, and are located above and below an intervening guiding socket 17 having an inwardly tapered cavity 18 for the purpose of centralizing and guiding the middle element of the companion abutment of the other coupler to position. For such purpose abutments 15, 15', are likewise above and below a middle intervening head 19 having a forwardly projecting tapering horn



19' arranged to enter the cavity 18 in the operation of coupling and to guide the abutments into suitable contacting position, abutments 15, 15', and head 19 and its horn 19' being preferably in one piece. For the purpose of supporting said element and connecting abutments, I provide a housing 20 mounted on the side of the coupling head as in Fig. 6 or integral with the coupling head 2, in which housing is mounted a stem 21 and an interposed spring 22 surrounding a reduced extension 23 of said stem and adapted to project it outwardly in advance of the housing and to hold it into abutting contact with the companion pipe-coupling abutment, when in contact. Stem 21 is preferably square in cross section or of any other suitable form and is provided at its forward end with a ball bearing terminal 24 mounted in a socket formed between a rear extension of head 19 and a surrounding securing bearing portion 25 screwed upon said rear extension as shown. Said securing portion 25 is provided at its rear end with a flaring socket 26 preferably square in cross section adapted to receive a sliding lock 27 mounted on stem 21. Said lock 27 is normally pressed forwardly into registering position in socket 26 by spring 28 mounted on stem 21 adapted to press the lock into engagement with socket 26, whereby, when head 19 is not coupled with abutments 14, 14', it will be held outwardly from housing 20 in rigid horizontal position and ready to enter by its horn 19' the socket 18 of the other coupler head.

For the purpose of releasing lock 27 from socket 26 so as to permit the head 19 to become flexible by its ball mounting 24, I provide the jaws 3 of each coupler with a supplemental arm 29 adapted to swing outwardly upon the coupler heads being brought together in the act of coupling, and to engage a lug 30 of lock 27, whereby said lock is caused to slide backwardly against spring 28, withdrawing it from engagement with socket 26 and permitting the head 19 to move relatively due to the ball bearing to accommodate itself to variations in the position of the different parts, in service.

By this construction I provide an integral flexible joint so that either lateral or vertical deflections of the abutments with relation to their carrying parts are provided, thereby overcoming and compensating for variations in the car or other variations due to movement of travel. Each abutment 15, 15', as thus constructed and mounted is capable of an independent longitudinal movement with relation to its supporting coupling head 2, due to spring 22, and for the purpose of locking said abutments 15, 15', against the relatively immovable coupling abutments 14, 14', I provide wedges 31, 31, forming elements of a sliding bolt 32 mount-

ed for lateral adjustment transversely across the middle interior portion of each coupling head 2, as clearly shown in Figs. 1, 2 and 5. Each of said bolts 32 is mounted transversely of the coupler heads in suitable bearing cavities therein, and is normally held back by a spring 33 in a withdrawn position. Wedge terminals 31 are designed to enter and operate upon inclined faces at the sides of corresponding receiving sockets 34 of head 19, and the locking operation is designed to be automatically performed to tightly force the head and abutments 15, 15', into contacting position with companion abutments 14, 14', upon the coupling heads. For such purpose bolt 32 is provided with shoulders 35, 36, at each side of a socket, against which shoulders the edge of the inner arm 4 of the coupling jaw bears. As it swings around into the locking position shown in Fig. 5, the wedges 31 operate to accomplish these results, while opening of the coupler withdraws the bolt.

The operation of the invention will be readily understood from the foregoing description. As the coupling heads are brought together the hose connecting abutments are likewise centralized with relation to each other by the horn and socket elements, the coupling jaws accomplishing by their parts the backward separation of lock 27 and the insertion of the locking wedges so that the parts will be maintained in operative position until the main couplers are separated.

The invention may be variously changed or modified in construction, design or other details, but all such changes are to be considered as within the scope of the following claims.

What I claim is:—

1. In a car coupler, the combination with the main coupler head provided with a swinging jaw and a terminal element at one side having a plurality of hose connections adapted to receive and make connection with a co-acting element of another similar coupler, of a transversely arranged sliding locking wedge extending through each coupler head adapted to tighten said elements together, said locking wedge having shoulders arranged to be engaged by the terminal of the inner arm of the coupling jaw, substantially as set forth.

2. In a car coupler, the combination with the main coupler head provided with a swinging jaw and a terminal element at one side having a plurality of hose connections adapted to receive and make connection with a co-acting element of another similar coupler, of a transversely arranged sliding locking wedge extending through each coupler head adapted to tighten said elements together, said locking wedge having shoulders



arranged to be engaged by the terminal of the inner arm of the coupling jaw, and a retracting spring arranged to withdraw the locking wedge from engagement, substantially as set forth.

3. In a car coupler, the combination of a main coupler head provided with a swinging jaw, a hose coupling terminal element at one side thereof provided with a plurality of hose connections adapted to make connection with a co-acting terminal of another similar coupler and having a tapered guiding socket, a fluid-conducting terminal element at the other side of the coupler head provided with a tapered guiding projection and a guide stem loosely coupled therewith, a plurality of hose connections for said terminal element, a guiding housing mounted on the coupler head engaging said stem and provided with a cushioning spring, a transversely arranged sliding locking wedge adapted to engage and couple together one of said conducting terminal elements with the terminal element of a co-acting coupler head, said locking wedge being mounted transversely in the interior of the main coupling head and having shoulders adapted to be engaged by the tail of the coupling jaw, and a spring for normally holding the locking wedge in retracted position, substantially as set forth.

4. In a car coupler, the combination with the main coupler head provided with a guide stem housing, of a terminal connecting element having a plurality of hose connections, a ball-and-socket joint therefor, a carrying rod mounted in the housing and provided with a sliding lock adapted to interengage with a portion of the ball-and-socket joint mechanism to hold the terminal element rigidly thereon, and adapted to be retracted from engagement therewith to provide for

flexibility of the ball-and-socket joint, substantially as set forth.

5. In a car coupler, the combination with the main coupler head provided with a guide stem housing, of a terminal connecting element having a plurality of hose connections, a ball-and-socket joint therefor, a carrying rod mounted in the housing and provided with a sliding lock adapted to interengage with a portion of the ball-and-socket joint mechanism to hold the terminal element rigidly thereon, and adapted to be retracted from engagement therewith to provide for flexibility of the ball-and-socket joint, said sliding lock having shouldered portions adapted to be engaged by the inner terminal of the coupler jaw for actuating it, substantially as set forth.

6. In a car coupler, the combination with the main coupler head provided with a guide stem housing, of a terminal connecting element having a plurality of hose connections, a ball-and-socket joint therefor, a carrying rod mounted in the housing and provided with a sliding lock adapted to interengage with a portion of the ball-and-socket joint mechanism to hold the terminal element rigidly thereon, and adapted to be retracted from engagement therewith to provide for flexibility of the ball-and-socket joint, said sliding lock having a portion adapted to be engaged by an element of the coupler jaw for actuating it, and a compression spring adapted to impart movement to said lock to engage with the ball-and-socket supporting mechanism, substantially as set forth.

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

WILLIAM D. LEFTWICH.

Witnesses:

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CHAS. S. LEPLEY.