

L. D. WOODRUFF.
 FLUID PRESSURE COUPLING FOR TRAIN PIPES.
 APPLICATION FILED JULY 26, 1913.

1,102,622.

Patented July 7, 1914.

3 SHEETS—SHEET 1.

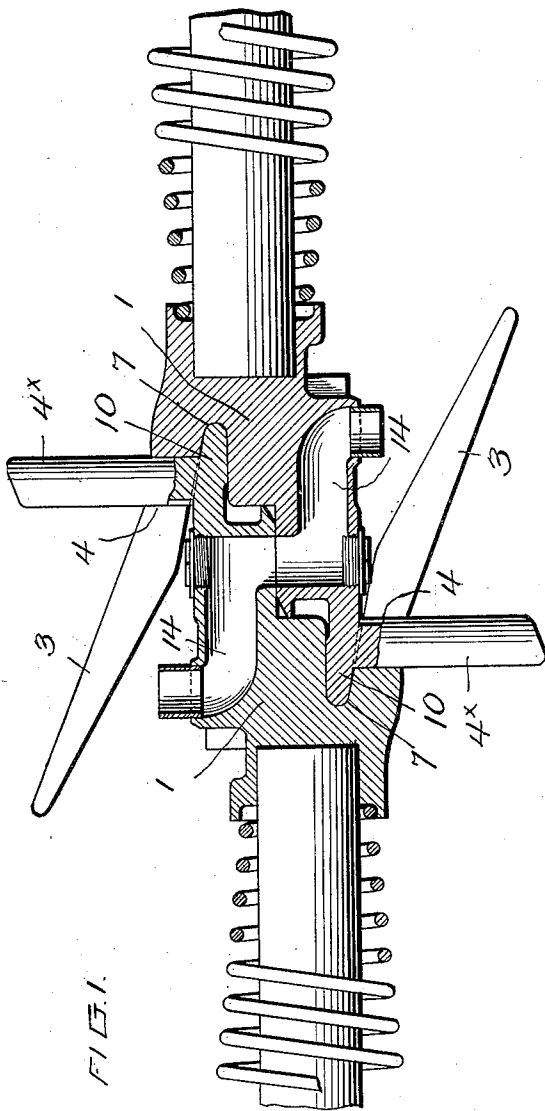


FIG. 1.

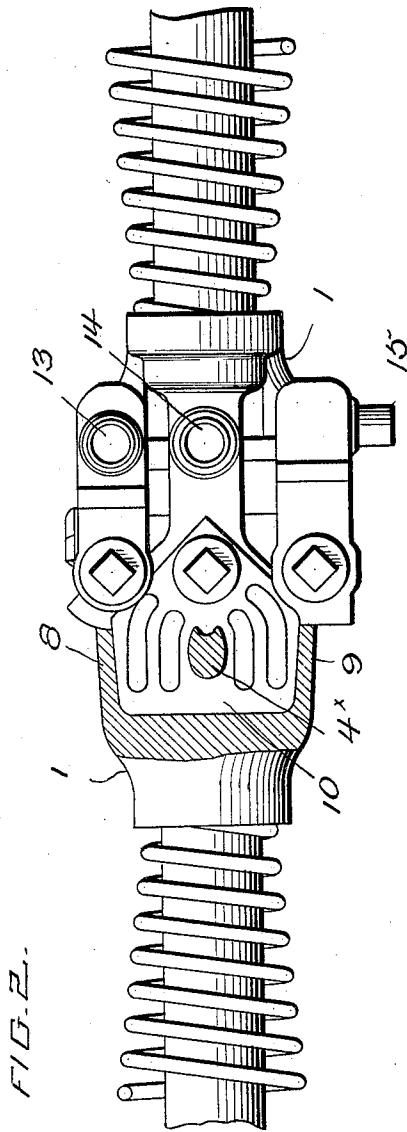


FIG. 2.

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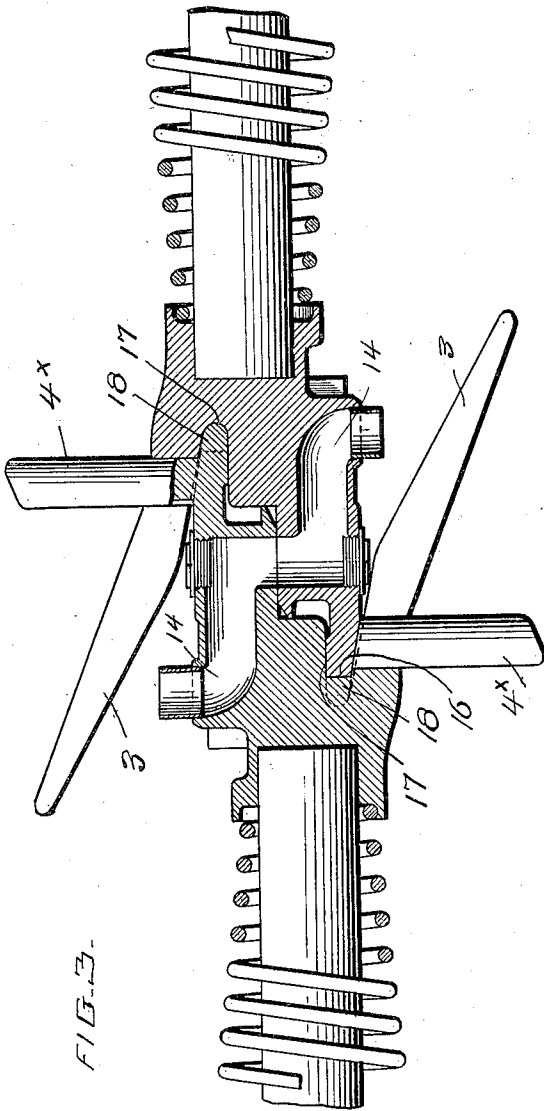


FIG. 3-

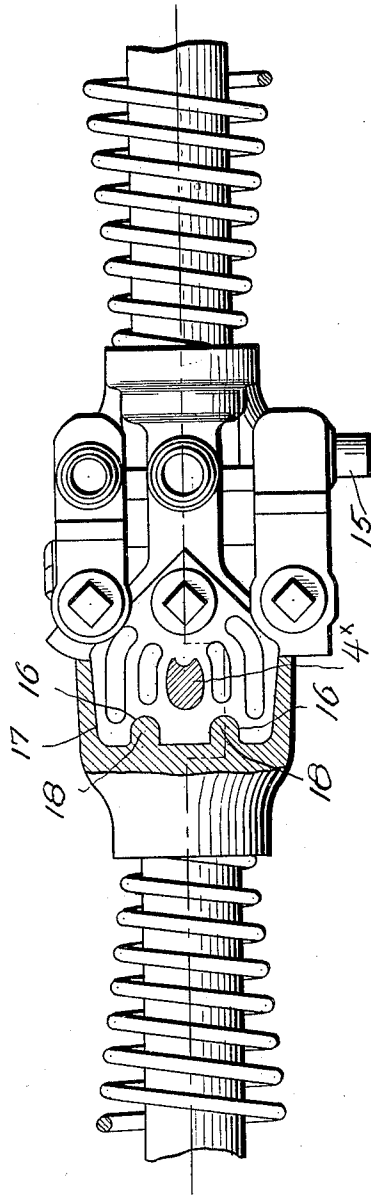


FIG. 4-

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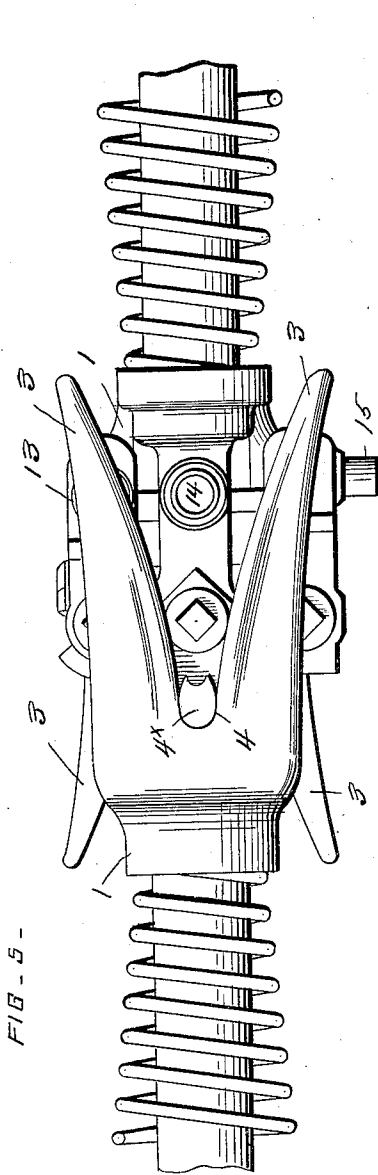


FIG. 5 -

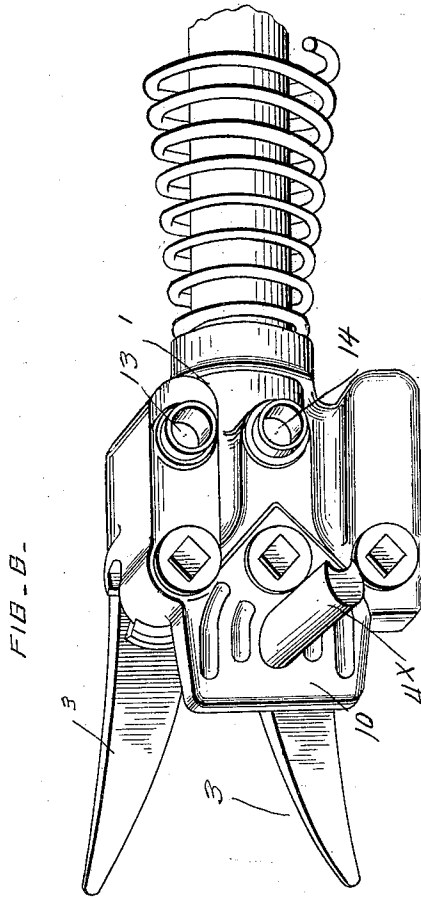


FIG. 6 -

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UNITED STATES PATENT OFFICE.

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FLUID-PRESSURE COUPLING FOR TRAIN-PIPES.

1,102,622.

Specification of Letters Patent.

Patented July 7, 1914.

Application filed July 26, 1913. Serial No. 781,443.

To all whom it may concern:

Be it known that I, LEONIDAS D. WOODRUFF, a citizen of the United States, residing at Hattiesburg, in the county of Forrest and State of Mississippi, have invented certain new and useful Improvements in Fluid-Pressure Couplings for Train-Pipes; and I do hereby 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, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in fluid pressure coupler heads for use upon railway trains and the object in view is to produce a simple and efficient device of this nature so arranged that a combination triple engaging device serves, when the heads become engaged, to hold the heads in a securely locked relation to each other against lateral or axial movements.

The invention is illustrated in the accompanying drawings which, with the numerals of reference marked thereon, form a part of this specification and in which:—

Figure 1 is a horizontal sectional view through two fluid pressure coupler heads, illustrating my improved means for locking the same securely together. Fig. 2 is a vertical central sectional view. Fig. 3 is a vertical sectional view through a modified form of the interlocking means the section being taken on the dot and dash line in Fig. 4. Fig. 4 is a retail horizontal sectional view of the modified form. Fig. 5 is a side elevation of two couplers connected together, and Fig. 6 is a detail view in perspective of one of the coupler heads.

Reference now being had to the details of the drawings by numeral, 1 designates a coupling head adapted to be connected to suitable supporting means, not shown, underneath the draw head of a car coupler and is provided upon one side thereof with the inclined guiding arms 3 with a recess 4 intermediate the inner ends thereof, said arms being adapted to guide a pin 4* projecting from the opposite face of another coupler to be interlocked therewith. Adjacent to said recess and formed vertically in the end of the coupler is a slot 7 with closed

top and bottom 8 and 9 respectively, and projecting from the opposite edge of the coupler is a tongue, designated by numeral 10, the upper and lower edges of which are inclined, as shown clearly in the vertical sectional view of the drawings, and adapted to correspond to the inner inclined ends of the top and bottom 8 and 9 of the slot, said diverging guiding arms 3 further being adapted to guide the tongue 10 laterally into the slot 7. Said coupler heads are shown as being provided with a plurality of passages leading therethrough and designated respectively by numerals 13, 14 and 15 to which pipes, not shown, are adapted to be connected in any suitable manner through which steam, air or other fluid may be conducted but which does not form a part of the present invention and hence further detailed description of these features is not deemed necessary in the present application.

By reference to Fig. 1 it will be seen that the orifices for the train pipe ducts or openings are arranged with their axes transversely of the heads, and they should, as a consequence, be brought together by a lateral movement of the heads. This result is accomplished in the present structure by forming the sockets 7 and tongues 10 with the inner face of the tongue and the corresponding face of the socket substantially parallel with the longitudinal axis of the head, and the outer face of the tongue and the corresponding face of the socket inclined, said inclination of the socket wall forming a continuation of the inclination of the face of the base portion of the two guiding arms 3. The result of this construction is that the two tongues following down the inclines formed by the arms and the bases of the arms are gradually moved laterally toward each other, and at the moment when the tongues seat solidly in the sockets 7 they are given their final lateral movement, which brings the apertured faces of the heads tightly into contact. This construction also results in the two heads being made to occupy a slight angle with respect to each other, as best seen in Figs. 1 and 3, where it will be noted that the longitudinal axis of of the heads when coupled do not exactly coincide, but are offset slightly with respect to each other.

In Fig. 3 of the drawings, I have shown a slight modification of my invention in which the tongue or projection upon the for-

ward head of the coupler is provided with a series of notches 16 therein and which, when interlocked in the slot 17, shown in Fig. 4 of the drawings, are adapted to receive the ribs 18 formed integral with the walls of the slot 17, thereby making a more secure interlocking feature to the present invention.

When two coupler heads of similar construction are brought together, it will be noted that the projecting tongue on each head will engage the inner surface of the divergent guiding arms on the opposite head; and each pin projecting laterally from said tongues will engage the recesses between the opposite divergent guiding arms, thus affording with said tongue, pin and guiding arms on each opposite head, a triple guiding means insuring accurate engagement of the heads. When the two coupler heads of similar construction are thus brought together, it will be noted that the said projecting tongue upon each head will engage a slot upon the opposite coupling, the inclined edges at the top and bottom of the tongue having a secure wedging contact against the inclined top and bottom walls of the slot, while the said pins which are integral with the outer faces of the tongues or projections are adapted, when the heads become locked, to engage the recesses formed at the inner ends and base of the guiding arms, thus each of the triple engaging means as set forth, when the heads become engaged, serve in combination as a double lock, one lock being formed in combination when the projections or tongues engage the corresponding slots on the opposite heads, and the other lock being formed by the projecting integral pins engaging the opposite recesses at the inner ends of opposite diverging guiding arms, thus affording an absolute and secure locking means for the coupler heads against either axial, lateral or other movements.

The tongue 10 is made broad at the end in order to bridge the space between the divergent guide arms or to insure the engagement of the end of the tongue with the inclined faces of the arms, when the pin enters between the said arms. In other words, the pins and divergent edges of the arms center the heads vertically and the tongues and inclined faces of the arms center the heads transversely. Both centering means operate simultaneously, for it will be noted that the pins are relatively long, projecting practically as far from the longitudinal axis of the head as do the divergent arms, and consequently will enter between the arms of the cooperating head when the heads are in any relation which will permit of their being coupled.

The centering pins, when seated in the recesses at the base of the divergent arms,

serve as an important element in locking the heads in alinement with each other, inasmuch as they constitute bearings intermediate the bearings formed by the tongues seating in the sockets beyond the base of the divergent arms and prevent any pivotal movement or tendency of the heads to wedge open when subjected to strain transverse of their longitudinal axis.

What I claim to be new is:—

1. In an automatic train pipe coupling, a coupling member comprising a perforated coupler head having a pair of divergent guiding arms both located on the same side of the longitudinal axis of the head and both inclined in the same direction away from said axis, there being a socket having top, bottom and side walls at the base of said arms for receiving a tongue on the companion coupling, a broad forwardly projecting tongue on the opposite side of the head from, but of less length than, said arms, adapted to seat in the socket in and be guided by the arms on the companion head, and a guiding pin projecting transversely from the outer face of said tongue for cooperation with the arms on the companion head.

2. An automatic train pipe coupling embodying opposite heads of corresponding construction, each head having on one side of its longitudinal axis, divergent guiding arms both inclined in the same direction away from said axis, a recess between said arms and a vertically elongated socket extending inwardly beyond the base of the arms, and having top, bottom and side walls, each head also having on the opposite side of its longitudinal axis a broad tongue projecting beyond the base of, but of less length than the arms, to seat in the socket in the cooperating head, and a pin projecting laterally to cooperate with the divergent arms and seat in the recess between the arms on the cooperating head, the recess and pin on each head being out of alinement with each other transversely of the head, whereby relative pivotal movement of coupled heads is prevented.

3. In an automatic train pipe coupling, a coupling member comprising a coupler head provided with an air passage therethrough and having upon one side of its longitudinal axis diverging guiding arms with a recess intermediate the inner ends thereof, a socket extending inwardly beyond the base of the arms and having top, bottom and side walls, a broad forwardly extending tongue on the opposite side of the longitudinal axis from the divergent arms, formed to seat in the socket in the companion head, and a laterally extending guide pin on the outer side of the tongue positioned out of transverse alinement with the recess between the arms on the opposite side of the head and

formed to seat in the recess between the arms of the companion head and out of transverse alinement with the corresponding pin thereon.

5 4. An automatic train pipe coupling comprising companion coupler heads, each having upon one side of its longitudinal axis diverging guiding arms with a recess intermediate the inner ends thereof, each head
10 having a socket formed by a slot with closed top and bottom adjacent to said recess and extending inwardly beyond the inner end of the latter, a forwardly projecting tongue with laterally extending integral guide pin
15 upon its outer face, said tongue conforming to and adapted to engage the sides and top and bottom walls of the slot, and said pin adapted to interlock with the recess when
20 two heads are coupled together, as set forth.

25 5. An automatic train pipe coupling comprising companion coupler heads, each having upon one side of its longitudinal axis diverging guiding arms with a recess intermediate the inner ends thereof, each head having
30 a vertically elongated socket formed by a vertical slot with closed top and bottom which are inclined and which slot extends inwardly beyond the inner end of said recess, a broad tongue projecting from each head
35 and inclined upon its upper and lower edges, adapted when interlocking with the slot to have wedging action against the inclined top and bottom of the slot, and guide pins on the tongues adapted to engage said recesses and cooperating with the tongue to securely hold the coupler heads against rela-

tive axial, lateral and vertical movements, as set forth.

6. An automatic train pipe coupling comprising oppositely disposed yieldingly supported coupler heads, each embodying a pair of divergent guiding arms both located in a single plane inclined to the longitudinal axis of the head, and each embodying on the opposite side of its axis from said guiding
45 arms a forwardly projecting tongue having its inner face substantially parallel with said axis and its outer face inclined inwardly toward said axis, each head having at the base of its divergent guiding arms a
50 socket for the reception of the tongue on the companion head, said socket being provided with top, bottom and side walls and having its inner face substantially parallel with the longitudinal axis of the head and its outer
55 face inclined to correspond to the inclination of the outer face of the tongue on the companion head, said heads being provided with cooperating transversely arranged train pipe duct openings adapted to be
60 brought together by the cooperation of said tongues and sockets and transverse pins adapted to seat between said arms out of alinement with each other whereby relative
65 pivotal movement of the heads is prevented.

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

LEONIDAS D. WOODRUFF.

Witnesses:

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