

J. A. HALBROOK & M. J. WILLMS.

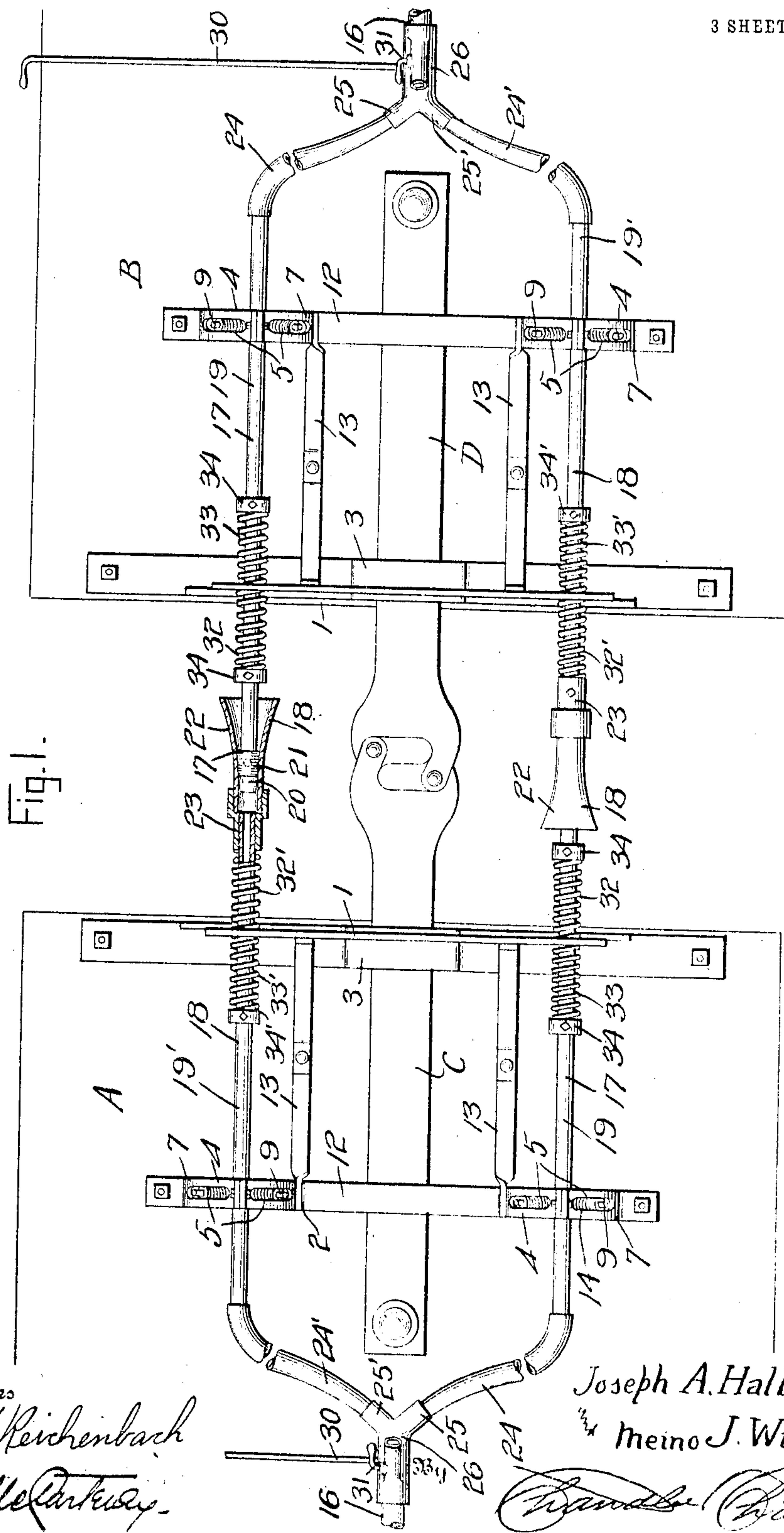
TRAIN PIPE COUPLING.

APPLICATION FILED JUNE 4, 1908.

906,527.

Patented Dec. 15, 1908

3 SHEETS—SHEET 1.



Witnesses

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Inventors

Joseph A. Halbrook.

Meino J. Willms.

Handwritten signature of the attorney, followed by the word "Attorneys" in a small, stylized font.

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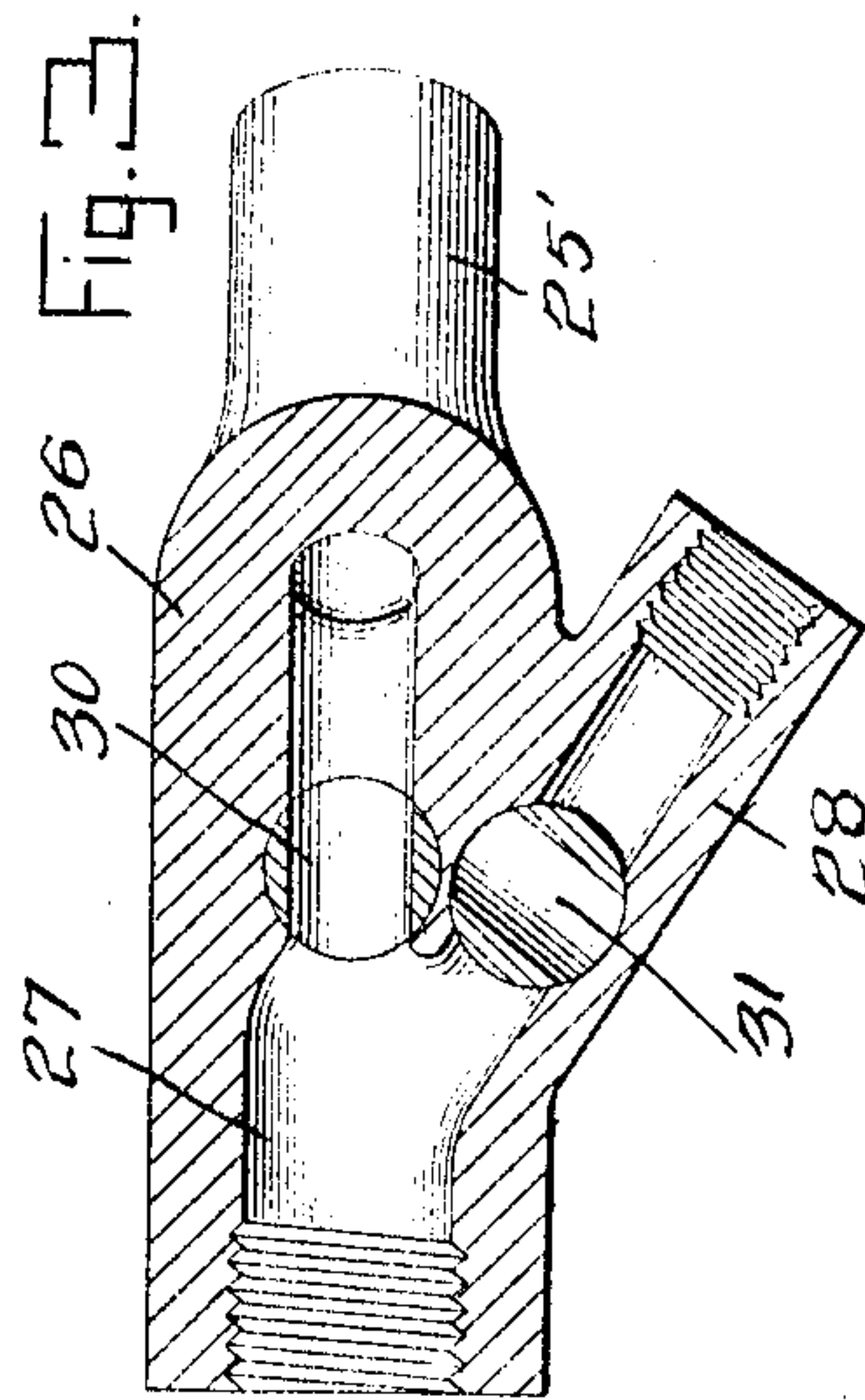
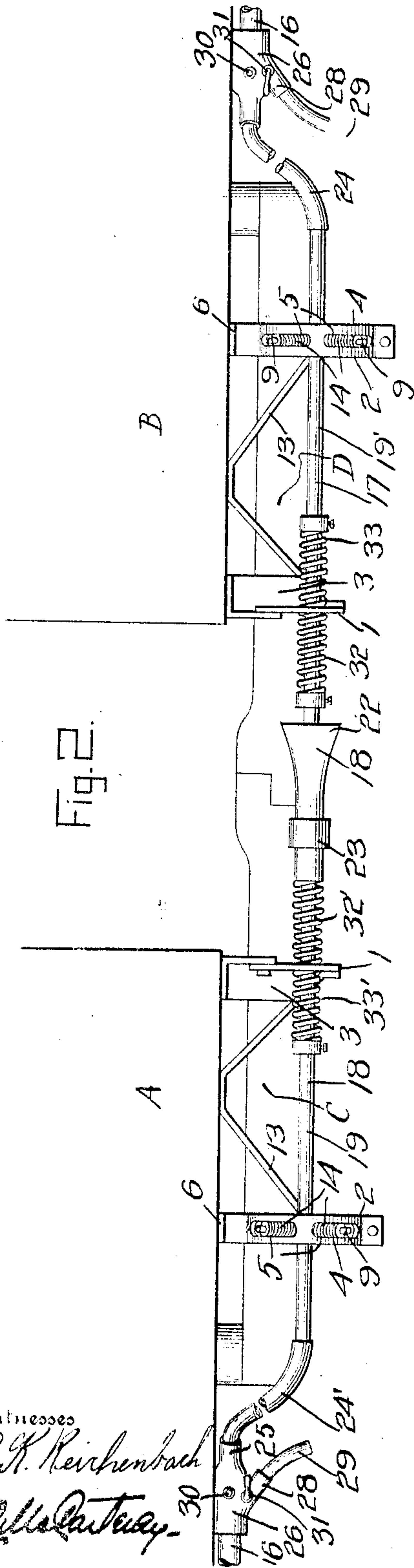
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Witnesses
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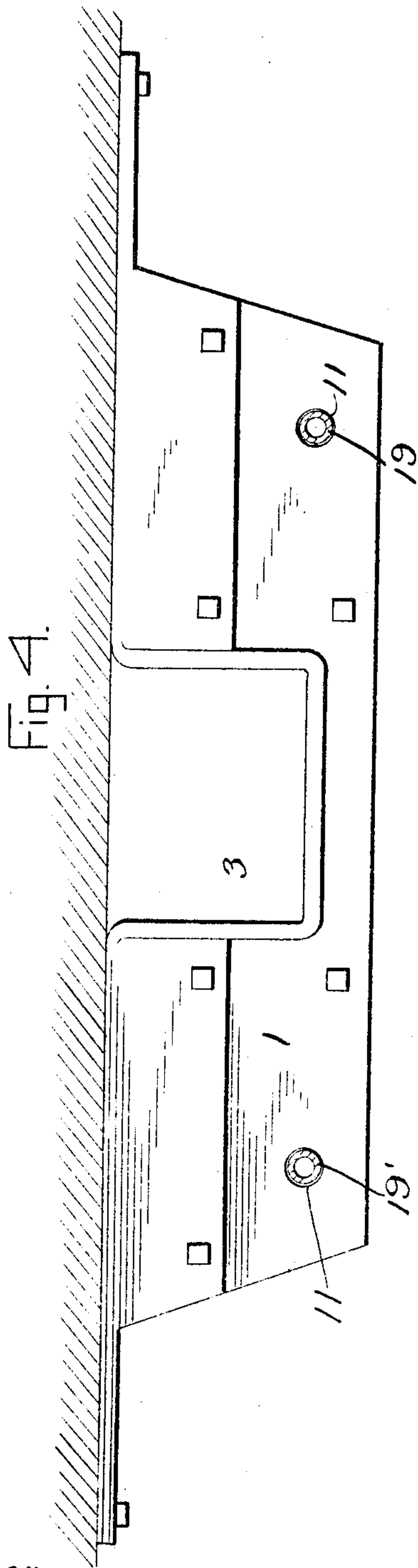
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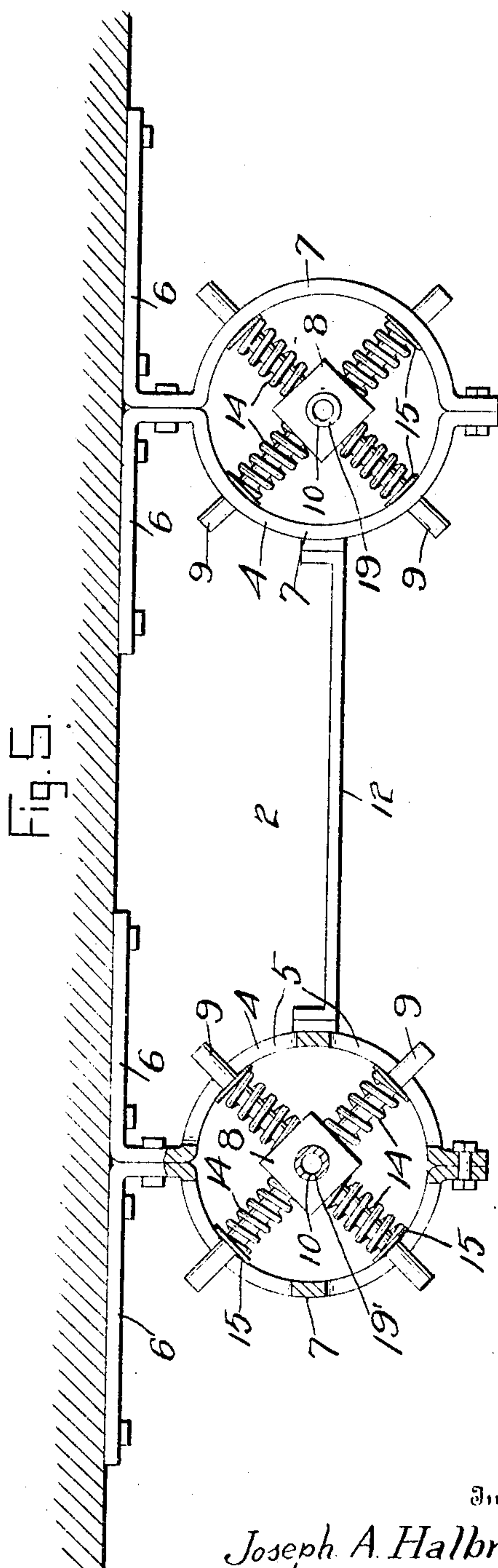
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3 SHEETS—SHEET 3.



Witnesses

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UNITED STATES PATENT OFFICE.

JOSEPH A. HALBROOK AND MEINO J. WILLMS, OF BRIDGEPORT, WASHINGTON.

TRAIN-PIPE COUPLING.

No. 906,527.

Specification of Letters Patent.

Patented Dec. 15, 1908.

Application filed June 4, 1908. Serial No. 436,722.

To all whom it may concern:

Be it known that we, JOSEPH A. HALBROOK and MEINO J. WILLMS, citizens of the United States, residing at Bridgeport, in the county of Douglas, State of Washington, have invented certain new and useful Improvements in Train-Pipe Couplings; and we 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.

The present invention relates to improvements in train-pipe couplings, and particularly to that class of air couplings which are automatically connected as the cars come together, the especial object of the invention being the provision of a supporting device for the coupling members which is constructed in such a manner as to permit them to yield both laterally and vertically, as well as endwise, thus accommodating themselves to differences in height in mating the couplings of adjacent cars, and to inequalities in the road bed or when the train is traveling around curves.

With the above and other ends in view, the invention comprises primarily, a male and a female coupling member supported in front and rear depending brackets secured to the bottom of the car, the rear bracket consisting of a pair of annular members or rims each having a series of peripheral slots formed therein, and a hub provided with a series of spokes extending loosely through the slots, each spoke carrying a coil spring, thus forming what is tantamount to a universal joint between the hub and rim, and permitting the coupling member, whose stem extends loosely through the bore of the hub to move both vertically and sidewise, in either direction.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which corresponding parts, or features, as the case may be, are designated by the same reference numerals throughout the several views.

Of the said drawings, Figure 1 is a bottom plan view of the adjacent ends of two cars equipped with the improved air-pipe couplers. Fig. 2 is a side elevation thereof. Fig. 3 is an enlarged longitudinal section of the valve. Fig. 4 is a detail view of the

front bracket. Fig. 5 is a similar view of the rear bracket, the rims or annular members being shown partly in section.

Referring more particularly to the drawings, A and B designate, respectively, the two cars and C and D the members for coupling the same together, said members being of any preferred type and having their rear ends pivoted to the cars and their forward ends projecting beyond the car ends as shown. To the bottom of each car is secured a pair of depending brackets 1 and 2 which are arranged in spaced relation to and parallel with each other and are disposed transversely of the cars and of the coupling members. Each front bracket 1 is provided with a downwardly extending seat 3 through which the corresponding coupling member C or D extends, the width of said seats being sufficiently great to permit the requisite swinging movement of said members when the train is passing around a curve.

The rear brackets 2 which include the more important features of the invention each consist of a pair of annular rims or frames 4 provided with a series of alining longitudinal peripheral slots 5, each frame being formed of a pair of straps whose upper ends 6 fit flush against the bottom of the car and are bolted thereto, and whose lower portions are bowed outwardly in opposite directions, as indicated by the numeral 7, the adjacent ends of the bent portions of each pair of straps being bolted together. Disposed centrally of each frame is a hub 8 provided with a series of radiating spokes 9, which are formed integral therewith and have their free ends projecting through the adjacent slots 5. Each hub has formed therethrough an axial bore 10 which is disposed directly in the rear of, and thus in alinement with an opening 11 formed through the corresponding end of the front bracket 1. The two annular members or frames of each rear bracket are disposed in spaced relation to each other and are connected together by means of a metal strap 12 between which latter and the bottom of the cars the rear portions of the coupling members C and D pass. Each rear bracket is connected with the adjacent front bracket by means of a pair of inverted V-shaped

straps 13 whose apexes are bolted to the bottoms of the cars. The hubs 8 above referred to are held normally in central position by means of a series of expansible coil springs 14 which embrace the spokes 9 and bear at opposite ends against the hub and against a series of sliding washers 15 carried by the spokes, said washers being held against the inner peripheral walls of the frames by the tension of the springs.

The air pipes 16 carried by the cars are connected together by means of a pair of couplers, each of which includes a male member 17 and a female member 18 disposed longitudinally of the cars and arranged in spaced relation to and parallel with each other, the female member of each coupler being disposed directly in alignment with the male member of the opposite coupler, so as to receive the same when the cars are connected together by the inter-engagement of the members C and D.

Each male member consists primarily of a tubular rod 19 whose front portion extends loosely through the right hand opening 11 in the bracket 1, while its rear portion extends through the bore 10 of the hub carried by the adjacent frame 4, the first-mentioned portion of each member terminating in a frusto-conical head 20 provided with a cylindrical packing ring 21 formed of rubber or other suitable material, said head being adapted to fit in the funnel or bell shaped mouth 22 of the opposite female member, said mouth fitting in the socket formed in a sleeve 23 secured to the forward end of the rod 19' which forms the body portion of the female member and extends through the adjacent opening 11 and through the bore 10 of the corresponding hub 8.

The rear ends of each pair of rods 19 and 19' are fitted in the forward ends of flexible pipes 24 and 24' whose rear ends are in turn fitted upon the reduced free ends of the legs 25 and 25' formed upon the forward end of a branch coupler 26, said coupler having formed therein a longitudinal bore 27 in whose rear end is fitted the free end of the adjacent air supply pipe 16. The forward end of the bore of each coupler 26 terminates in two branches which communicate with the hollow legs 25 and 25', thus establishing communication between the branch coupler and the male and female members 17 and 18 through the medium of the pipes 24 and 24'. Each branch coupler is further provided intermediate its ends with a supplemental leg 28 which is likewise hollow and communicates at its inner end with the bore 27. The free end of each leg 28 is arranged to receive the inner end of an ordinary hose pipe 29, to permit a car provided with a pipe coupler of the character described to be coupled with

a car equipped only with an ordinary hose coupling, in which instance, it is necessary to shut off the supply of air or other fluid to the male and female members, this being accomplished by means of an angle cock 30 which extends through the branch coupler at the junction of the legs 25 and 25' with the body of said coupler. Where both cars are provided with pipe couplers of the above-described type, communication between the supplemental legs of the branch couplers and the air supply pipes is cut out by means of similar cocks 31.

Owing to the fact that the rear portions of the rods 19 and 19' extend through the openings formed in the hubs, which latter are yieldingly connected with the corresponding annular frames, and are normally disposed exactly centrally thereof, it will be apparent that when two cars are to be connected together, the male and female members will be disposed in position for automatic engagement with each other simultaneously with the engagement of the members C and D. It will likewise be apparent that after the cars have been coupled together, the yieldingly supported hubs will permit the coupling members to accommodate themselves to inequalities in the road bed, and also when the train is passing around curves, the manner in which said hubs are supported permitting both lateral and vertical movement thereof.

The invention further contemplates the provision of means for permitting longitudinal movement of both members of the pipe coupler in either direction, whereby they can accommodate themselves to the movements of the cars towards and from each other. To this end, each male member is provided with a pair of expansible coil springs 32 and 33 disposed upon opposite sides of the bracket 1 through which the member passes, said springs bearing against the bracket at their mutually-adjacent inner ends, while their outer ends bear against collars 34 secured to the rod portion of the member. In like manner, the rod portion of each female member carries a pair of similar springs 32' and 33' whose inner ends bear against the brackets 1, the outer end of each spring 32' bearing against the rear end of the adjacent sleeve 23, while the outer end of each spring 33' bears against a collar 34', owing to which construction, it will be apparent that a bodily longitudinal movement of the couplers is possible, and also that either member of each coupler can move longitudinally with respect to the other member thereof. Furthermore, the employment of a branch coupler constructed as above described, permits a car equipped with an ordinary hose coupling only, to be coupled to one provided with a coupler comprising a male and a fe-

male member and a hose coupling, in which instance, the supply of fluid may be shut off from said members by means of the angle cock.

5 What is claimed is:

1. The combination of a pipe-coupler; a vertical supporting bracket comprising a pair of straps having the lower portions thereof bent in opposite directions to form a skeleton frame, the adjacent ends of said bent portions being connected together; and a hub disposed centrally of said frame and yieldingly connected therewith for vertical and lateral movement with respect thereto, said hub being provided with a bore through which said coupler extends.

2. The combination of a pipe-coupler; a vertical supporting bracket comprising a pair of straps having the lower portions thereof bent in opposite directions to form a skeleton frame, said bent portions being provided with alining longitudinal slots and having their adjacent ends connected together; a hub disposed centrally of said frame and yieldingly connected therewith, for vertical and lateral movement with respect thereto, said hub being provided with a bore through which said coupler extends; and a series of spokes carried by said hub and having their free ends projecting through said slots.

3. The combination of a pipe-coupler; a vertical supporting bracket comprising a pair of straps having the lower portions thereof bent in opposite directions to form a skeleton frame, said bent portions being provided with alining longitudinal slots and having their adjacent ends connected together; a hub disposed centrally of said frame and provided with a bore through which said coupler extends; a series of spokes carried by said hub and having their free ends projecting through said slots; and a series of springs embracing said spokes and bearing at opposite ends against said hub and said frame, to permit lateral and vertical movement of said hub with respect to said frame.

4. The combination of a pipe-coupler comprising a male and a female member and a pipe connected to each member; a fluid supply pipe; a hollow branch coupling connected at its rear end to the free end of the supply pipe, and provided at its forward end with a pair of legs connected to the first-mentioned pipes, and with a supplemental leg; a hose-pipe connected at its rear end to said supplemental leg; and separate means carried by said branch-coupling, for shutting off the supply of fluid from said first-mentioned pipes, and from said hose-pipe.

5. The combination of a pipe-coupler, comprising a male and a female member,

and a pipe connected to each member; a fluid supply pipe; a branch coupling having a longitudinal bore opening through the rear end thereof and provided at its forward end with a pair of hollow diverging legs and intermediate its ends with a supplemental hollow leg, said diverging legs being connected to the free ends of the first-mentioned pipe; a hose-pipe having its rear end connected to said supplemental leg; and separate means for shutting off the supply of fluid from said supplemental leg and from said diverging legs.

6. The combination of a pipe-coupler comprising a male and a female member; front and rear vertical brackets arranged parallel with each other and transversely with respect to said members, the front bracket being provided adjacent its ends with perforations through which said members extend; a skeleton frame located at each end of the rear bracket and forming a portion thereof; and a member disposed centrally of each frame and provided with a bore through which the adjacent coupling member extends, said members being yieldingly connected with said frame to permit vertical and lateral movement of said coupling members with respect to said frames.

7. The combination, of a pipe-coupler, comprising a male and a female member; front and rear depending brackets arranged parallel with each other and transversely with respect to said coupling members, the front bracket having a perforation formed in each end thereof through which the adjacent coupling member extends; a skeleton frame located at each end of the rear bracket and forming a portion thereof, each frame being provided with a plurality of alining longitudinal slots; a supporting member disposed centrally of each frame and provided with a bore through which the adjacent coupling member extends; a series of spokes carried by each supporting member and having their free ends projecting through said slots; and yielding connections between each frame and the corresponding supporting member, to permit a vertical and lateral movement of said coupling members with respect to said frames.

8. The combination, with a car and a car coupler secured to the bottom of the car, of front and rear depending transverse brackets arranged parallel with and in spaced relation to each other, the front bracket being provided adjacent each end with an opening, and intermediate its ends with a downwardly extending seat through which the car coupling extends; a pipe-coupler comprising a male and a female member, said members extending through the openings in said front bracket; a skeleton frame located at each end of the rear bracket and forming

a part thereof; and a supporting member disposed centrally of each frame and provided with a bore through which the adjacent pipe coupling member extends, said
5 supporting members being yieldably connected with said frame, to permit vertical and lateral movement of said pipe coupling members with respect to said frames.

In testimony whereof, we affix our signatures in presence of two witnesses.

JOSEPH A. HALBROOK.
MEINO J. WILLMS.

Witnesses:

JOSEPH BOUSKA,
JOSEPH W. BOUSKA.