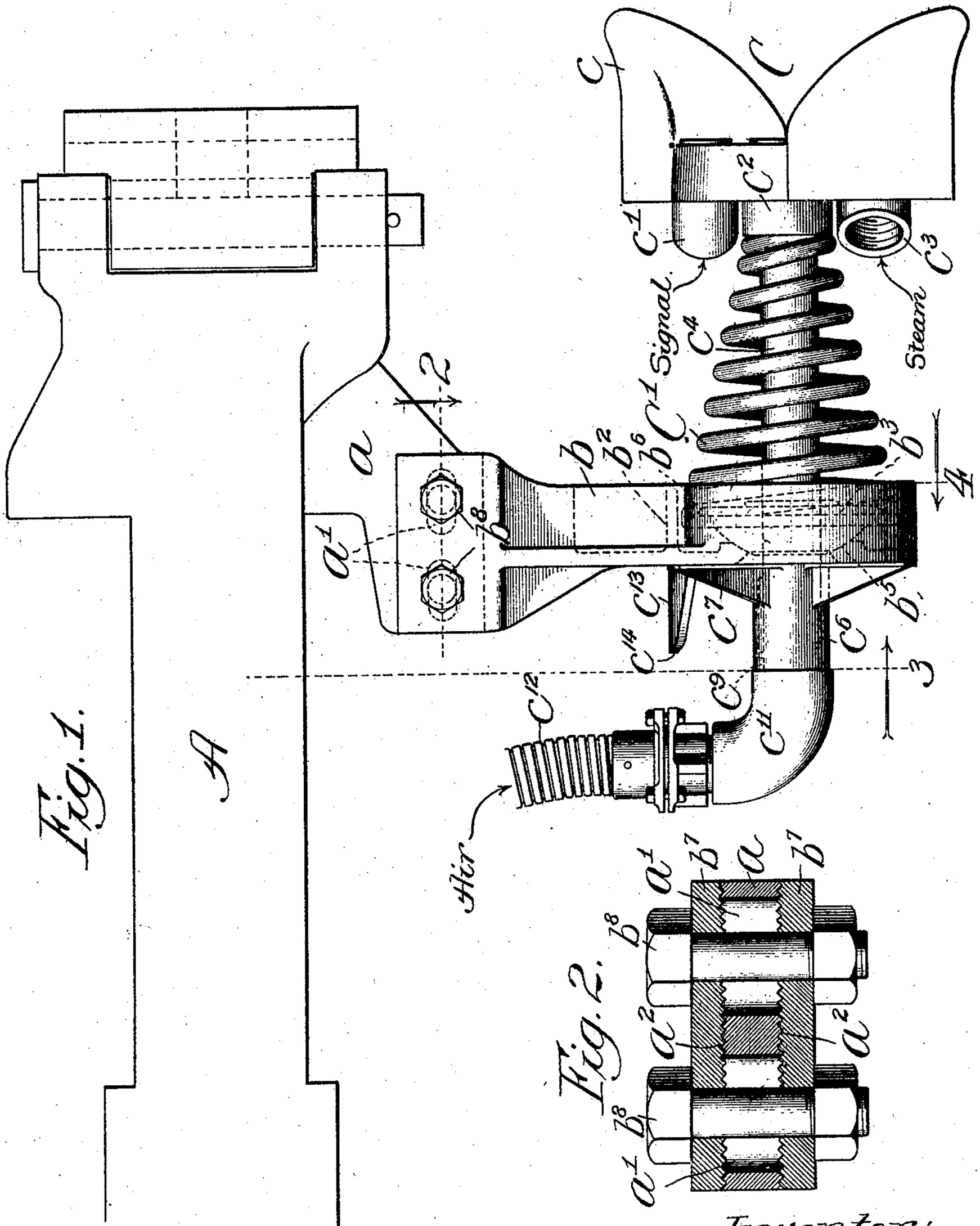
No. 846,841. PATENTED MAR. 12, 1907.

J. E. FORSYTH.

TRAIN PIPE COUPLING.

APPLICATION FILED JULY 18, 1906.

2 SHEETS—SHEET 1.



Witnesses:
Chas. E. Gaylord.
John Enders.

Inventor:
Joseph E. Forsyth,
By Dyrenforth, Dyrenforth, Lee and Wilcox
Attys.

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2 SHEETS—SHEET 2.

Fig. 3.

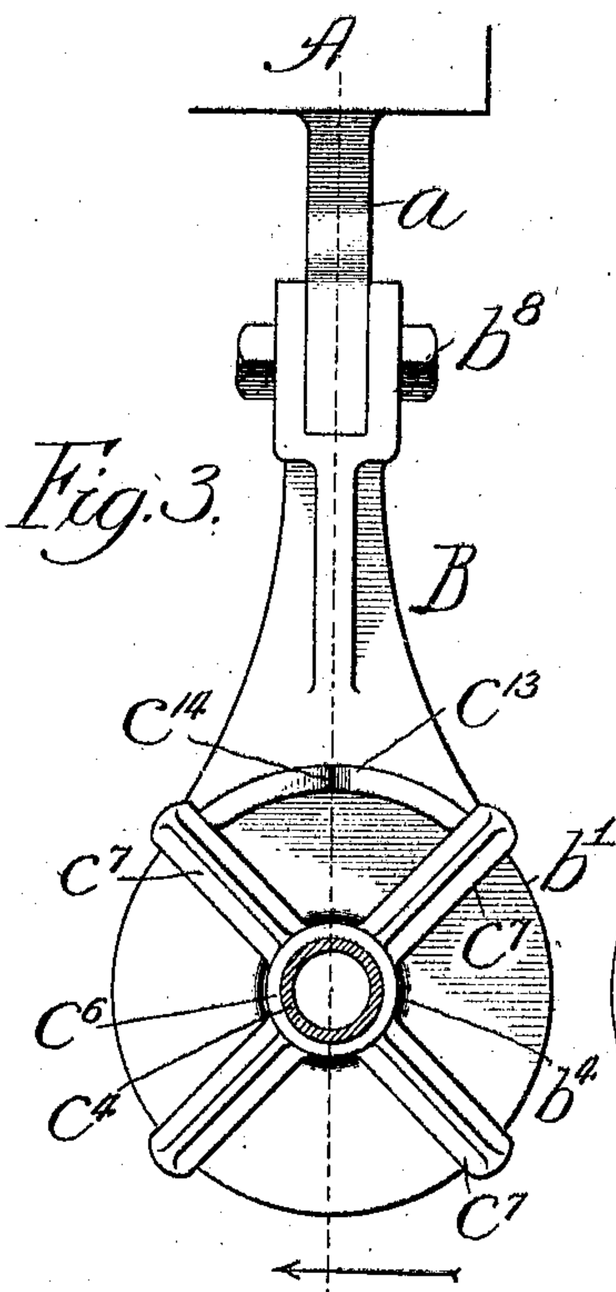


Fig. 4.

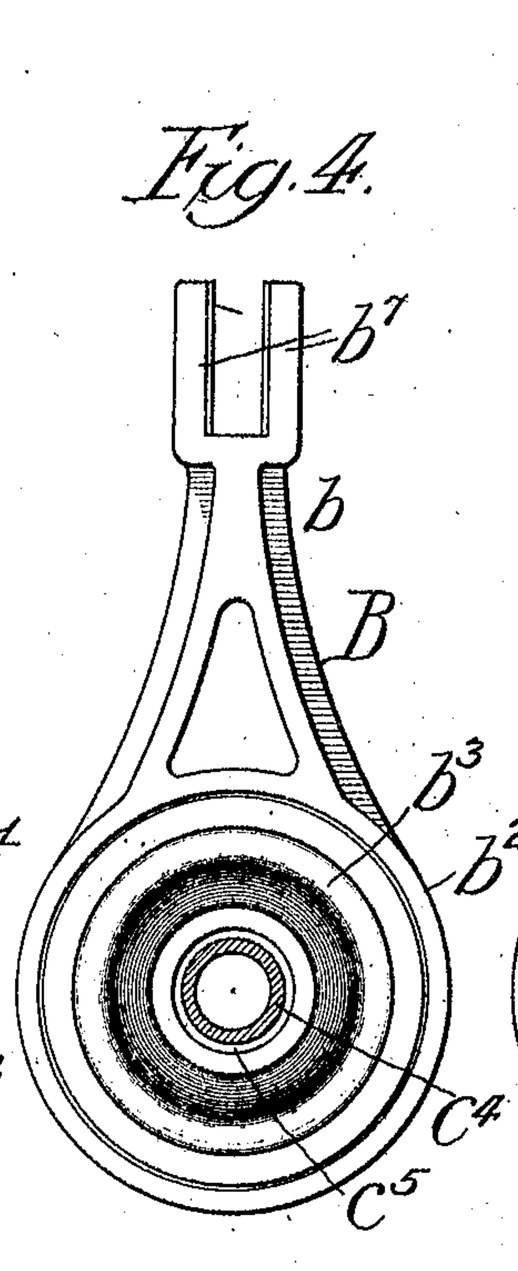


Fig. 5.

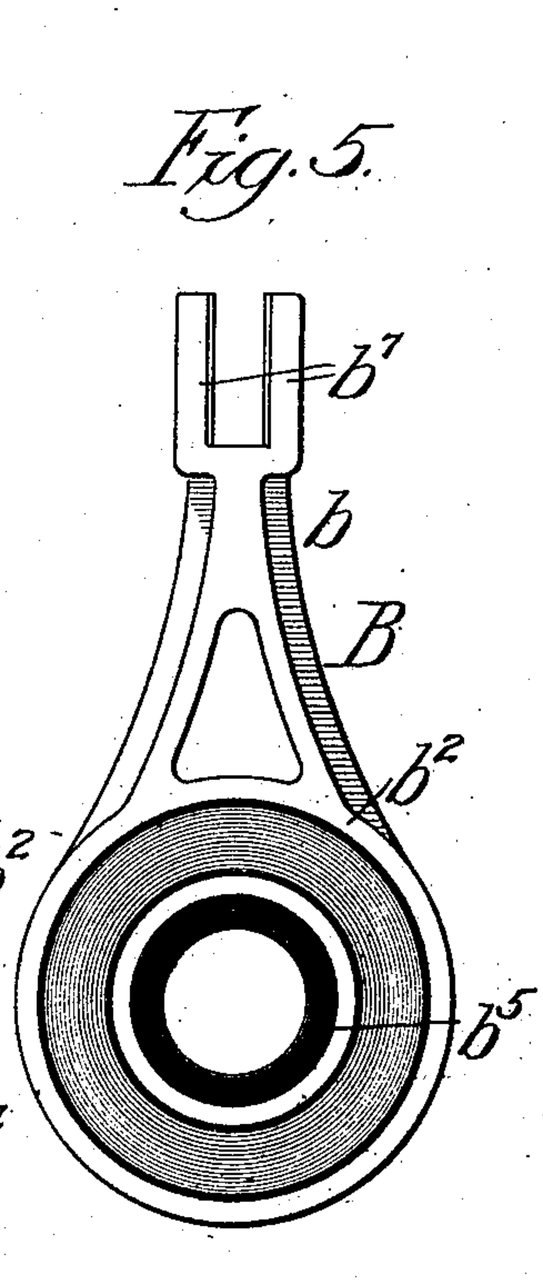
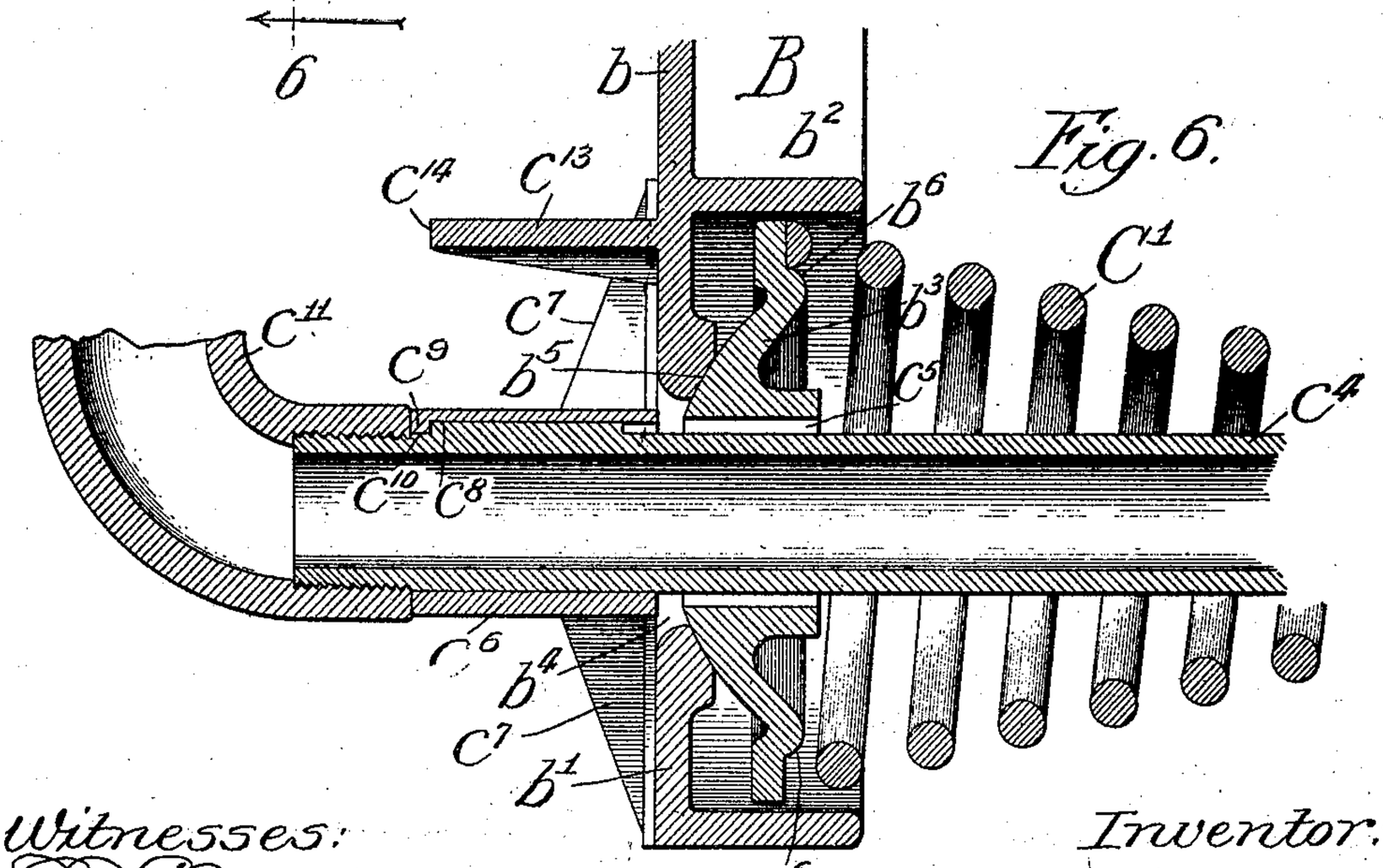


Fig. 6.



Witnesses:
Chas. E. Gaylord.
John Enders.

Inventor:
Joseph E. Forsyth,
By Dyrenforth, Dyrenforth, Lee & Wiles
Attys.

UNITED STATES PATENT OFFICE.

JOSEPH E. FORSYTH, OF CHICAGO, ILLINOIS.

TRAIN-PIPE COUPLING.

No. 846,841. Specification of Letters Patent. Patented March 12, 1907.

Application filed July 18, 1906. Serial No. 326,656.

To all whom it may concern:

Be it known that I, JOSEPH E. FORSYTH, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Train-Pipe Couplings, of which the following is a specification.

My invention relates particularly to means for supporting the coupling-heads of automatic train-pipe couplings.

My primary object is to provide improved means for holding and centering coupling-heads in a reliable manner, while permitting all necessary freedom of movement thereto to compensate for relative movement of the cars under any working conditions which may be encountered.

The invention is illustrated in its preferred embodiment in the accompanying drawings, in which—

Figure 1 represents a broken side elevational view of a draw-bar of a car with a train-pipe coupling-head supported thereon by means of my improved coupling-head support; Fig. 2, a section taken as indicated at line 2 of Fig. 1; Fig. 3, a section taken as indicated at line 3 of Fig. 1; Fig. 4, a section taken as indicated at line 4 of Fig. 1, the spring for projecting the coupling-head being removed; Fig. 5, a front or outer face view of the hanger shown in Fig. 4 with the spring-plate removed from its socket, and Fig. 6 a broken sectional view taken as indicated at line 6 of Fig. 3.

In the construction shown, A represents the draw-bar of a car, B a hanger depending therefrom, and C a train-pipe coupling-head supported on the hanger through the medium of a conical coil-spring C', which serves to hold it yieldingly projected and centered.

The draw-bar or car-coupling member A is provided with a depending boss *a*, supplied with horizontally-alined slotted openings *a'* and with vertically-serrated side surfaces a^2. The hanger B comprises a shank *b* and a ring *b'*, formed with a socket b^2 for a spring bearing or plate b^3. The ring has an opening b^4, at the forward side of the margin of which is formed a part-spherical concavity or seat b^5. The circular plate or disk b^3 has a convex part-spherical rear surface which fits in the bearing b^5, and it has an annular flange b^6, over which fits the large rear end of the conical spring C'. The upper end of the shank *b* has bifurcations b^7, which have vertical serrations on their adjacent surfaces and embrace the lug *a* between them. The bifurcations have bolt-holes, which receive bolts b^8 passing through the elongated openings *a'*. The bifurcations are sufficiently yielding to enable the hanger after adjustment on the lug *a* to be firmly clamped in place.

The coupling-head C is provided with the usual guide-prongs *c*, a passage *c'* in connection with the signal-pipe of the train, a passage c^2 for connection with the brake-pipe of the train, and a passage c^3 for connection with the steam-pipe of the train. Projecting rearwardly from the central portion of the head is a pipe c^4, which connects with the passage c^2 of the coupling-head, and which extends loosely through an opening c^5 in the spring-plate b^3. Upon the pipe c^4 in the rear of the hanger B is a collar c^6, equipped with prongs c^7, which engage the rear face of the ring *b'* of the hanger. The pipe c^4 is provided with a spline c^8, which fits in a longitudinal groove c^9, with which the sleeve c^6 is provided internally, the rear end of said groove being closed, as indicated at c^{10}. The connection is such that when the pipe c^4 moves rearwardly, as when two coupling-heads are brought together in the operation of coupling the cars, the sleeve c^6 and the arms carried thereby, constituting a spider, will move rearwardly with the pipe. Threaded onto the rear end of the pipe c^4 is an elbow c^{11}, with which is connected a flexible armored hose c^{12}, which in practice is connected with the brake-pipe of the train. The elbow c^{11} usually occupies a horizontal plane. It is shown rotated to the vertical plane, however, for convenience of illustration. Its front end bears against the sleeve c^6, affording a stop, when the coupling-head is in the advanced position. The ring *b'* of the hanger B is provided on its rear surface with a lug c^{13}, which tapers rearwardly to a point c^{14}, and fits loosely between two of the arms c^7 of the spider. This lug serves as a guide for the spider and through the medium of the spider maintains the coupling-head in proper position for coupling.

It will now be understood that when two cars are brought together in the operation of coupling the cars the coupling-heads of the train-pipes will engage each other and will be forced inwardly or retracted. In this action the spiders will be moved away from the rings *b'* somewhat, and the pipes c^4 will be free to swing in any direction to accommodate the coupling-heads of the train-pipes to

any relative movement of the cars which may occur under the conditions of use of the cars upon a railway-track.

No novelty in the train-pipe coupling-head herein shown is claimed, the coupling-head being substantially like that shown in my Patent No. 740,749, granted October 6, 1903.

The foregoing detailed description has been given for clearness of understanding only, and no undue limitation is to be understood therefrom.

What I regard as new, and desire to secure by Letters Patent, is—

1. The combination of a hanger provided with a socket having a part-spherical concave seat, a spring-plate movable in said socket having a part-spherical convex surface bearing on said seat, a coupling-head having a stem extending through said spring-plate, a spring confined between said plate and said head, and means for limiting the forward movement of the coupling-head.

2. The combination of a hanger provided with a socket, a spring-plate universally movable in said socket, a coupling-head having a stem extending through said spring-plate and hanger, a spider connected with said stem in the rear of said hanger, and means for guiding the spider with relation to the hanger when relative movement between the spider and hanger occur.

3. The combination of a hanger provided with a socket having a concave bearing, a disk having a convex surface received by said bearing, a coupling-head having a stem extending through said disk and hanger, a conical coil-spring having its large end bearing on said disk, a member on said stem in the rear of the hanger and limiting the forward movement of the coupling-head, and a member carried by the hanger and serving as a guide for said first-named member, for the purpose set forth.

4. The combination of a hanger having a ring equipped with a socket, a spring-plate bearing in said socket, a coupling-head having a tubular stem extending through said spring-plate and said ring, a conical coil-spring confined between said spring-plate and said coupling-head, a spider splined on said tubular stem in the rear of said hanger, and having a plurality of arms engaging the rear surface of said ring, a rearwardly-projecting lug carried by said ring and coacting with two arms of the spider, and a flexible pipe connected with the rear end of said tubular stem.

5. The combination with the draw-bar of a car, of a lug depending therefrom, a hanger having bolt-and-slot connection with said lug, a spring having a bearing on said hanger, and a train-pipe coupling-head supported and projected by said spring, for the purpose set forth.

6. The combination of a hanger having a ring at its lower portion, a coupling-head having a stem extending through said ring, a spring confined between said ring and head, a spider splined on said stem in the rear of said ring, a guide member projecting rearwardly from said hanger and coacting with said spider and serving, through the medium thereof, to maintain the coupling-head in righted position, and means on the stem in the rear of the spider for limiting the forward movement of the coupling-head.

JOSEPH E. FORSYTH.

Witnesses:
J. H. LANDES,
C. W. WASHBURNE.