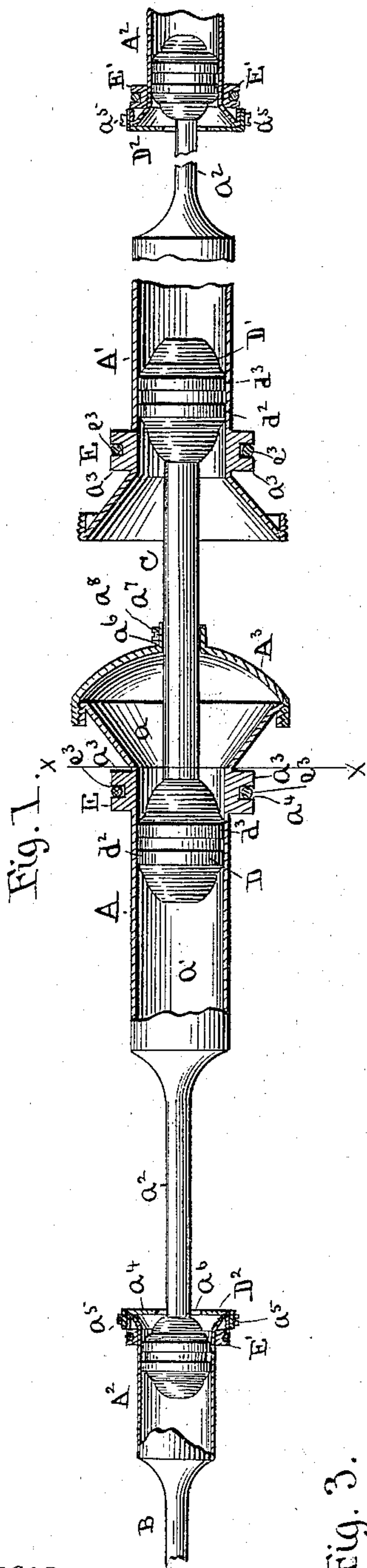


(No Model.)

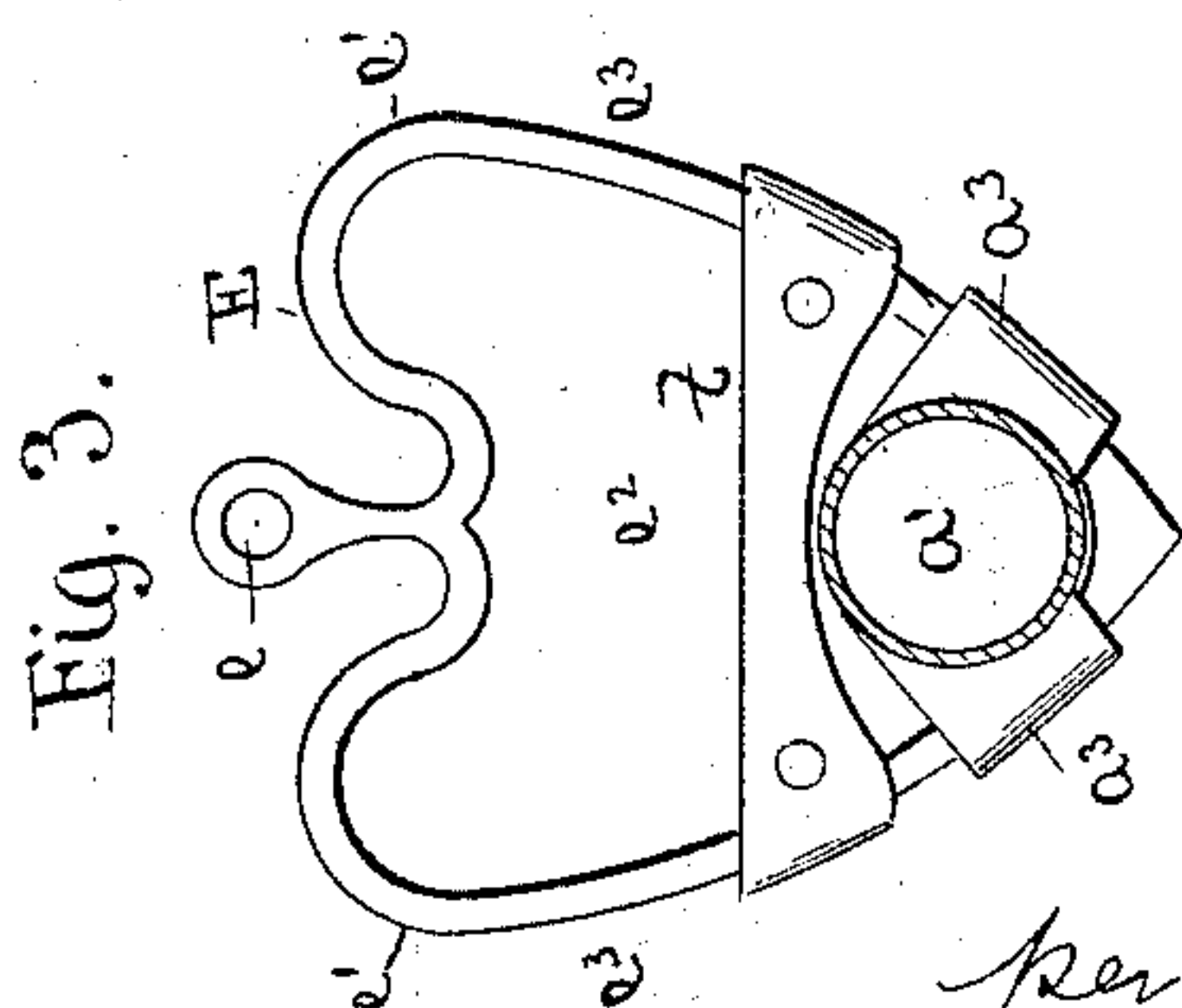
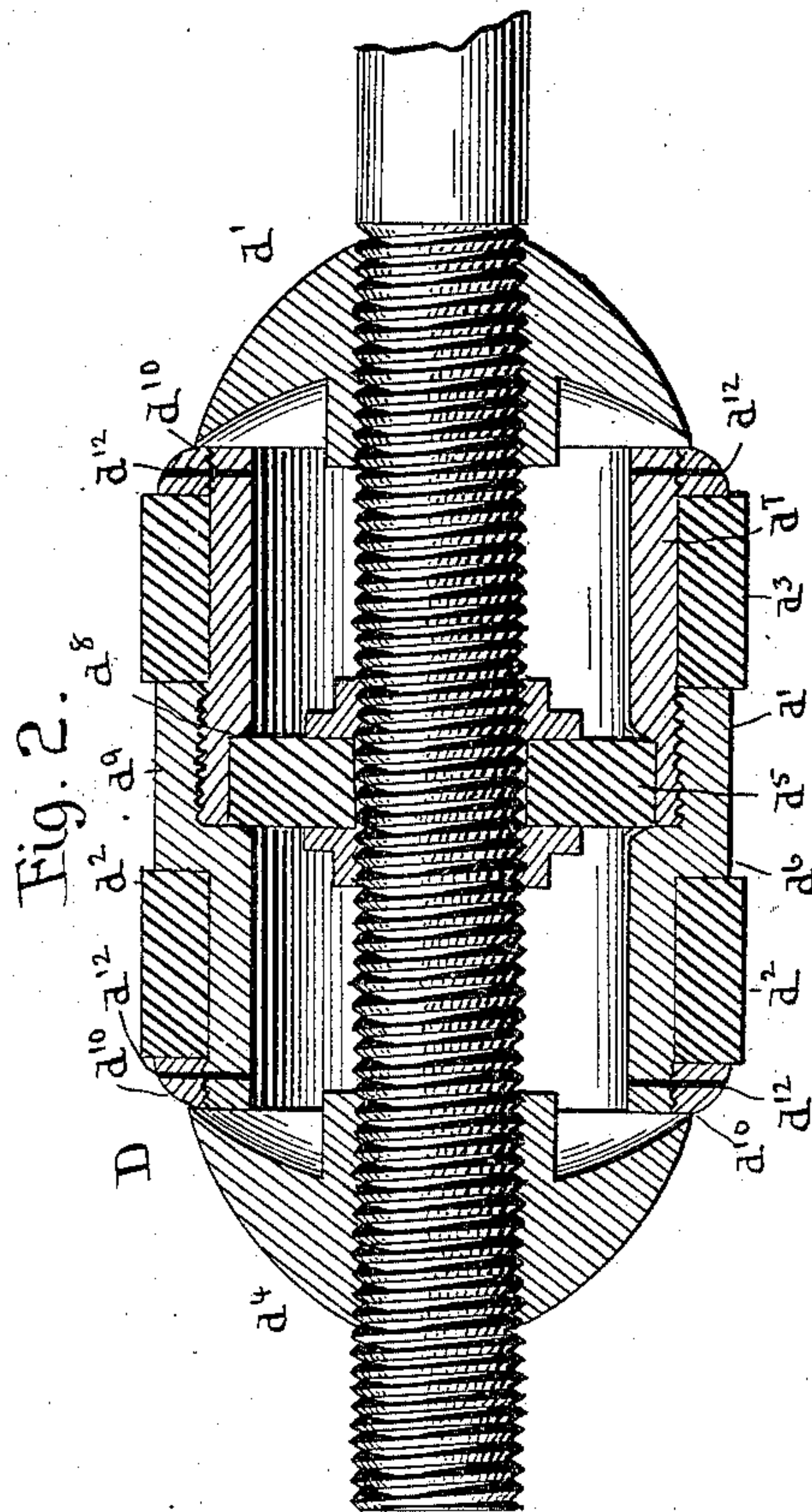
A. COTE.
PIPE COUPLING.

No. 383,865.

Patented June 5, 1888.



Witnesses:
Norris A. Clark,
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Inventor.
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UNITED STATES PATENT OFFICE.

ALPHONSE COTÉ, OF GALWAY, NEW YORK.

PIPE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 383,865, dated June 5, 1888.

Application filed July 8, 1887. Serial No. 243,780. (No model.)

To all whom it may concern:

Be it known that I, ALPHONSE COTÉ, a citizen of the United States, residing at Galway, in the county of Saratoga and State of New York, have invented certain new and useful Improvements in Pipe-Couplings; 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.

My invention relates to that class of steam-couplings for railroad-cars that is shown and described in a pending application, Serial No. 228,850, filed by me in the United States Patent Office on the 25th day of February, 1887.

The object of this invention is to give increased elasticity to the joint, so that in turning the sharpest curves the coupling will give sufficiently to prevent breakage, and at the same time not permit any steam to escape.

A further object is to suspend the joint or coupling, so that it will be free to take up any oscillatory movement that may be imparted to it.

The nature of the invention, therefore, consists of constructions and combinations, all as will hereinafter be described in the specification and pointed out in the claims, reference being had to the accompanying drawings, in which—

Figure 1 represents a horizontal section through the device; Fig. 2, a detail in section showing the elastic ball or spheroid and the manner of fulcruming the coupling-pipe thereon; Fig. 3, a vertical section on line $x x$, Fig. 1.

A A' represent the bell-shaped sockets, one secured to the end of each car; A², a smaller socket secured to the under side of the car, and as many being provided as necessary; B, the steam-pipe; C, the coupling-pipe; D, D', and D², the spheroids, which may be similar in form, but may be dissimilar, if desired, provided they carry out the objects of my invention; and E E', hangers for the sockets.

The bell-shaped sockets A A' consist of a flaring mouth, a , a cylindrical extension, a' , and a reduced section, a^2 , which may be connected to part a' by a reducer, or reduced in the manner shown in the drawings. It is suspended at its front end by a swinging hanger, E. This hanger is preferably of a heart shape,

having an eye, e , by which it is pivoted to the cross-beam, lobes e' , which limit the oscillation by one of them striking the underside of the car or a stop suitably located about it, and a hollow or open center, e^2 , through which the socket passes. The socket is provided with ribs a^3 , forming a space or groove, a^4 , in which the sides e^3 of the hanger E are inserted to prevent longitudinal movement of the socket. The reduced end of the socket is provided with a spheroid, D², which projects into the bell-shaped socket A², secured to the car by the hanger E', of any suitable or well-known form. The rear end of this socket may be reduced to form the steam-pipe B, which connects with the system of pipes inside of the car, or it may be connected by the well-known reducer. There may be as many of these sockets A² as desired; but one will ordinarily be sufficient. The mouth of the socket is closed by a cap, a^4 , secured thereto in any suitable manner. In the present instance I have shown the cap with lips, which embrace the outer walls of the mouth, and are securely held in place by set-screws a^5 , or it may be screwed thereon in the manner shown upon socket A. The aperture a^6 in the cap for the pipe or extension a^2 to pass through is large enough to permit slight lateral play of the socket A when the hanger swings or oscillates it by the movement of the car.

The socket A' is connected to a similar socket, A², in the same manner, and is also hung in the same manner as socket A by a hanger, E. One of the sockets is also provided with a cap, A³, which may be secured by lips and set-screws in the same manner as the cap or socket A², or it may be screwed thereon, as shown. The central part is perforated at a^6 and provided with a collar or flange, a^7 , which extends outward and through the coupling-pipe C, and is held from longitudinal movement by the set-screw a^8 in the collar or flange.

Upon the ends of the coupling-pipe C are the spheroids D D', one at each end. It is obvious that only one would be necessary if the cars were used in the same position; but I prefer to use one at each end, so that they will be interchangeable and the couplings always ready for use, provided both cars have the sockets.

The spheroids are constructed as follows: The coupling-pipe is screw-threaded for a suitable distance and a saucer-shaped nut, d , screwed thereon to any suitable point. A
 5 thimble, d' , of greater internal diameter than the diameter of the pipe C and having rounded ends, is slipped over the pipe and clamped in place by a saucer-shaped nut, d^4 . Before
 10 placing the thimble upon the pipe a disk-spring, d^5 , is secured to the latter by any suitable means. The part d^5 is made of metal, leather, composition, cloth, or any other suitable material that will permit the pipe to turn
 15 in the thimble, the object being to so arrange the parts that the spheroid will slide and turn in the socket whenever the movement of the cars calls for either or both of said functions.

The preferred form of thimble consists of two sleeves, d^6 d^7 , secured together, preferably, by screwing one upon the other, as
 20 shown, and one provided with a recess, d^8 , for the spring-disk d^5 , and the other having a collar, d^9 , which projects above the periphery of the sleeves. The outer ends of the sleeves are
 25 screw-threaded to receive the rings d^{10} , which are rounded upon their outer edges to fit the depressions in the nuts d and d^4 . These nuts and the thimbles are provided with holes d^{12}
 30 for a spanner, by means of which the parts are adjusted upon each other. The spaces between the rings d^{10} and collar d^9 are filled with a suitable packing material, d^2 d^3 , held in place by the nuts d^{10} d^{10} , which, when desired, are
 35 screwed up to increase the thickness of the packing and cause it to expand beyond the former diameter.

In practice the spheroid is normally in the cylinder of the socket and the packing fits the cylinder in somewhat the same manner as the
 40 piston of a cylinder, and the coupling-pipe is practically fulcrumed upon the thimble by means of the spring-disk, which permits said coupling-pipe to be deflected obliquely when the movements of the cars are not upon a
 45 straight line without altering the position of the thimble, which is held in place by the walls of the socket. If the pipe be deflected to such an extent that the nuts upon the end expose the interior of the cylinder to the ac-
 50 tion of the steam, the spring-disk prevents any steam from escaping through the cylinder to the outer air. Another effect of this construction is to prevent in a measure the cars from butting against each other. When the
 55 fact that the longitudinal movement of the spheroid is resisted by the pressure of the steam is considered, it will be seen that the spheroid acts as a piston in the cylinder, and when the cars are forced together the end of
 60 the spheroid presses against the steam flowing against it and retards the movement of the cars in the exact proportion that the steam acts upon the end of the spheroid, and, in fact, forms a steam-cushion for the spheroid.

65 It is my intention to hang the sockets on the ends of the cars in such manner that they will be free to oscillate with the movement of

the cars, and it is obvious that many forms for doing this may be devised without departing from my invention. A chain may be used
 70 instead of the hanger, if the chain be hung by the ends in such manner as to form a V, in the bottom of which the socket is suspended; but such a device would not prevent longitudinal movement of the parts. It is desirable
 75 sometimes to prevent vertical movement of the socket, and when the heart-shaped or similar form of hanger is used a clip, F, is provided. This clip is preferably made of plates of sheet metal bent around the arms and
 80 secured in place by bolts. The parts around the arms are made sufficiently large to permit of a slight vertical movement upon the arms, so that the socket will not be held rigidly in
 85 place.

What I claim as new is—

1. In a coupling, the combination of a socket, a thimble, a coupling-pipe in said thimble, and the spring secured to the thimble and pipe, substantially as described. 90
2. In a coupling, the combination of a socket, a thimble, a coupling-pipe in said thimble, and a spring-disk secured to the thimble and pipe, substantially as described. 95
3. In a coupling, the combination of a socket, a thimble having washers upon the outer side, a coupling-pipe within said thimble, and a spring secured to the thimble and coupling, substantially as described. 100
4. In a coupling, the combination of a socket, a thimble, a screw-threaded coupling-pipe, and a spring attached to the thimble and secured to the coupling-pipe by clamping-nuts, substantially as described. 105
5. In a coupling, the combination of a socket, a thimble having rounded ends, a coupling-pipe secured to the thimble by a spring, and saucer-shaped clamping-nuts, substantially as described. 110
6. In a coupling, the combination of a socket, a thimble having rounded ends, a coupling-pipe having a spring-disk secured to the thimble, and saucer-shaped clamping-nuts, substantially as described. 115
7. In a coupling, the combination of a socket, a thimble having rounded nuts on each end, a coupling-pipe connected with said thimble by a spring, and saucer-shaped nuts upon said coupling-pipes, substantially as described. 120
8. The combination, in a pipe-coupling, of a socket, a thimble formed of two sections screw-threaded together and having rounded ends, a coupling-pipe secured to the thimble by a spring, and the saucer-shaped nuts upon the coupling-pipe, substantially as described. 125
9. The combination, in a pipe-coupling, of a socket, a thimble having the screw-nuts upon the ends and packing between the nuts, and a coupling-pipe fulcrumed upon and secured to said thimble by a spring, substantially as described. 130
10. In a pipe-coupling, the combination of two sockets having their mouths opposite each other, a cap upon one of said sockets, a coup-

ling-pipe passing through said cap into the sockets, and a sliding thimble within the socket and secured to said pipe by a flexible connection which permits the pipe to turn, substantially as described.

5 11. In a pipe-coupling, the combination of two sockets pivoted at their rear ends, hangers for supporting the front ends of said sockets, a cap upon one of said sockets, a coupling-
10 pipe passing through said cap into the sockets, and a sliding thimble within the socket and secured to said pipe by a flexible connection which permits the pipe to turn, substantially as described.

12. In a coupling, the combination of the 15 sockets pivoted at their rear ends, the swinging hangers having the stops and clips, and a pipe having spheroids on its ends adapted to turn and slide in said sockets, substantially as described.

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

ALPHONSE COTÉ.

Witnesses:

GEO. R. BYINGTON,
M. F. HALLECK.