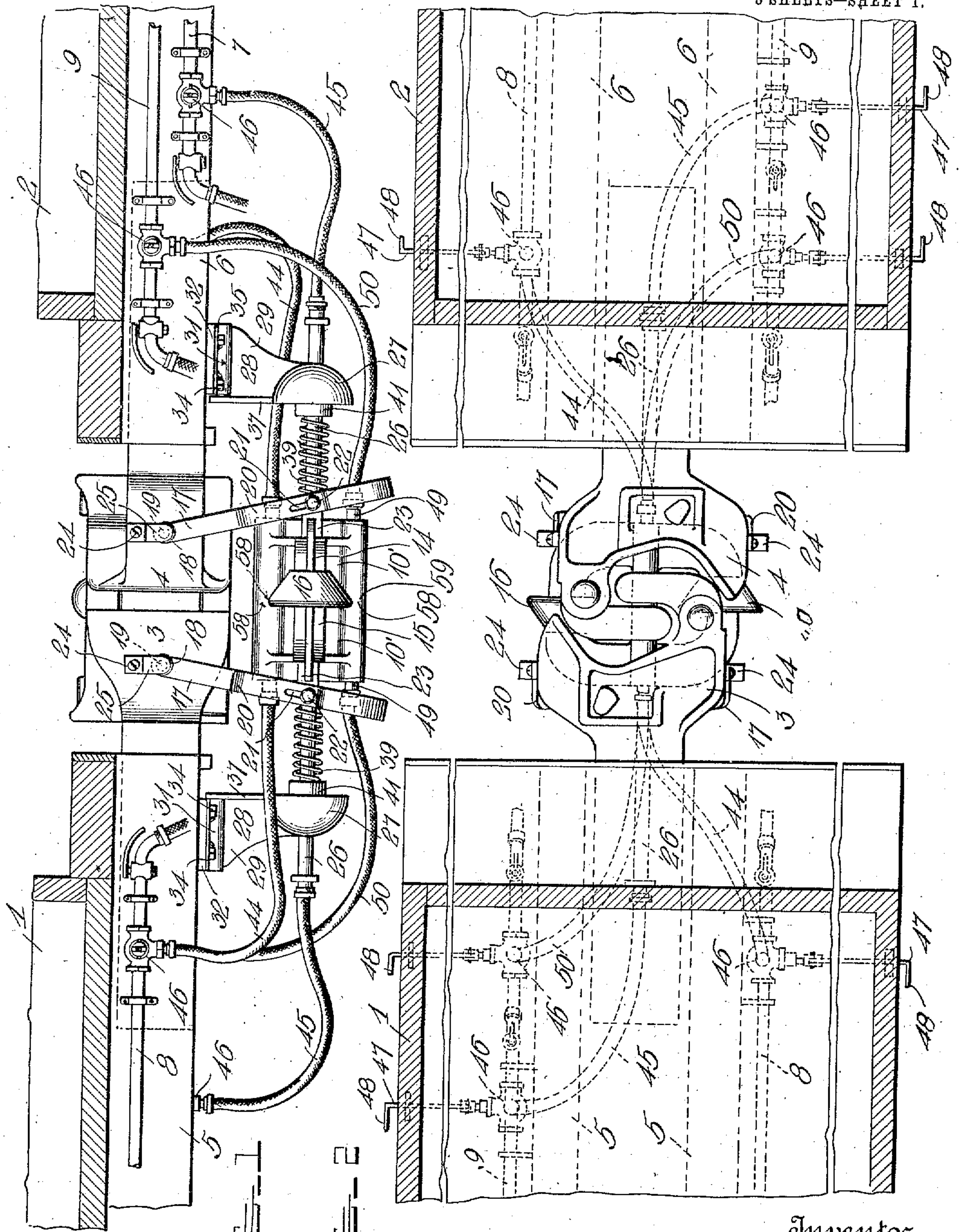


S. P. FOSTER.
 TRAIN PIPE COUPLING.
 APPLICATION FILED NOV. 17, 1909.

966,393.

Patented Aug. 2, 1910.

3 SHEETS—SHEET 1.



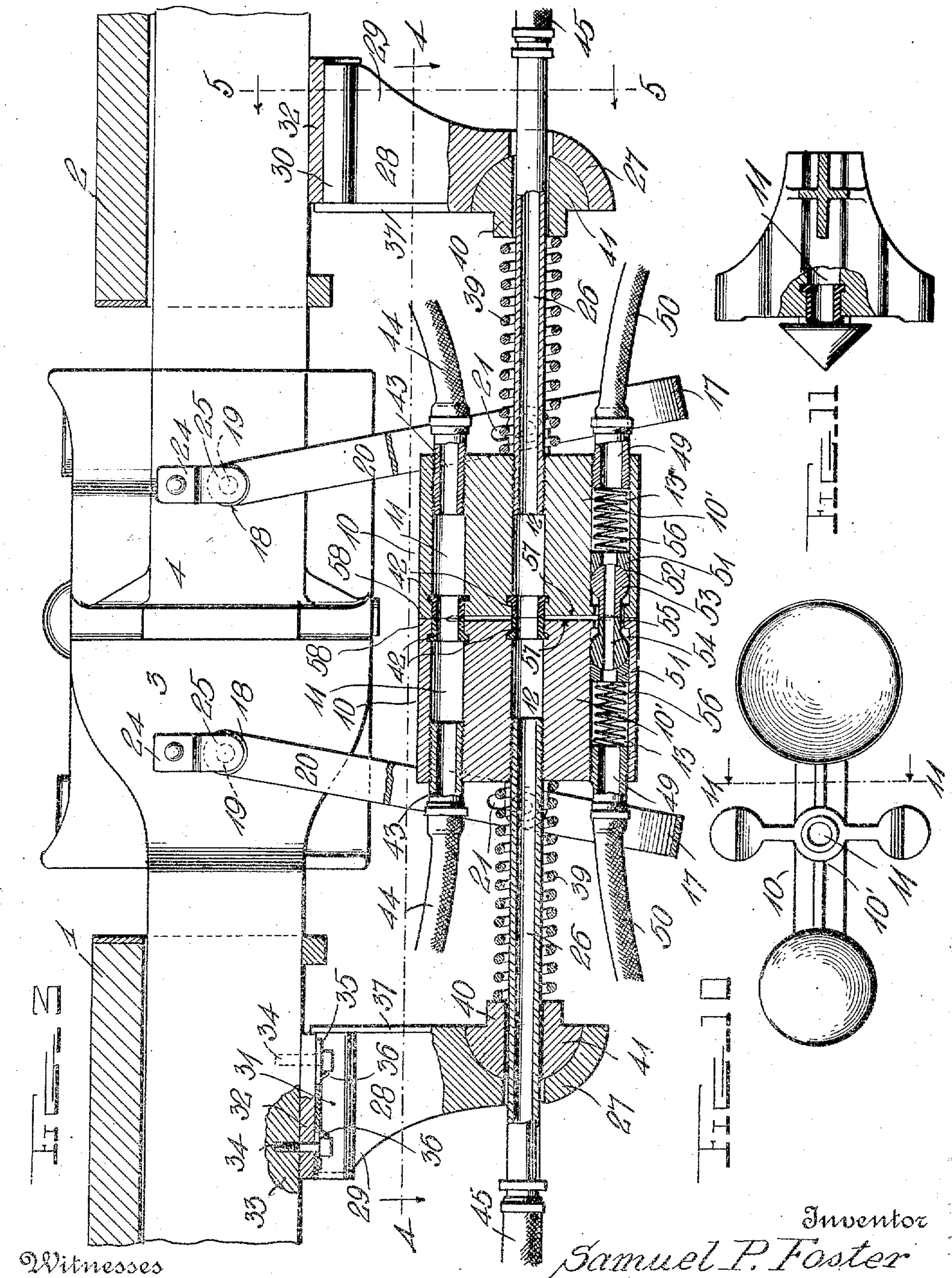
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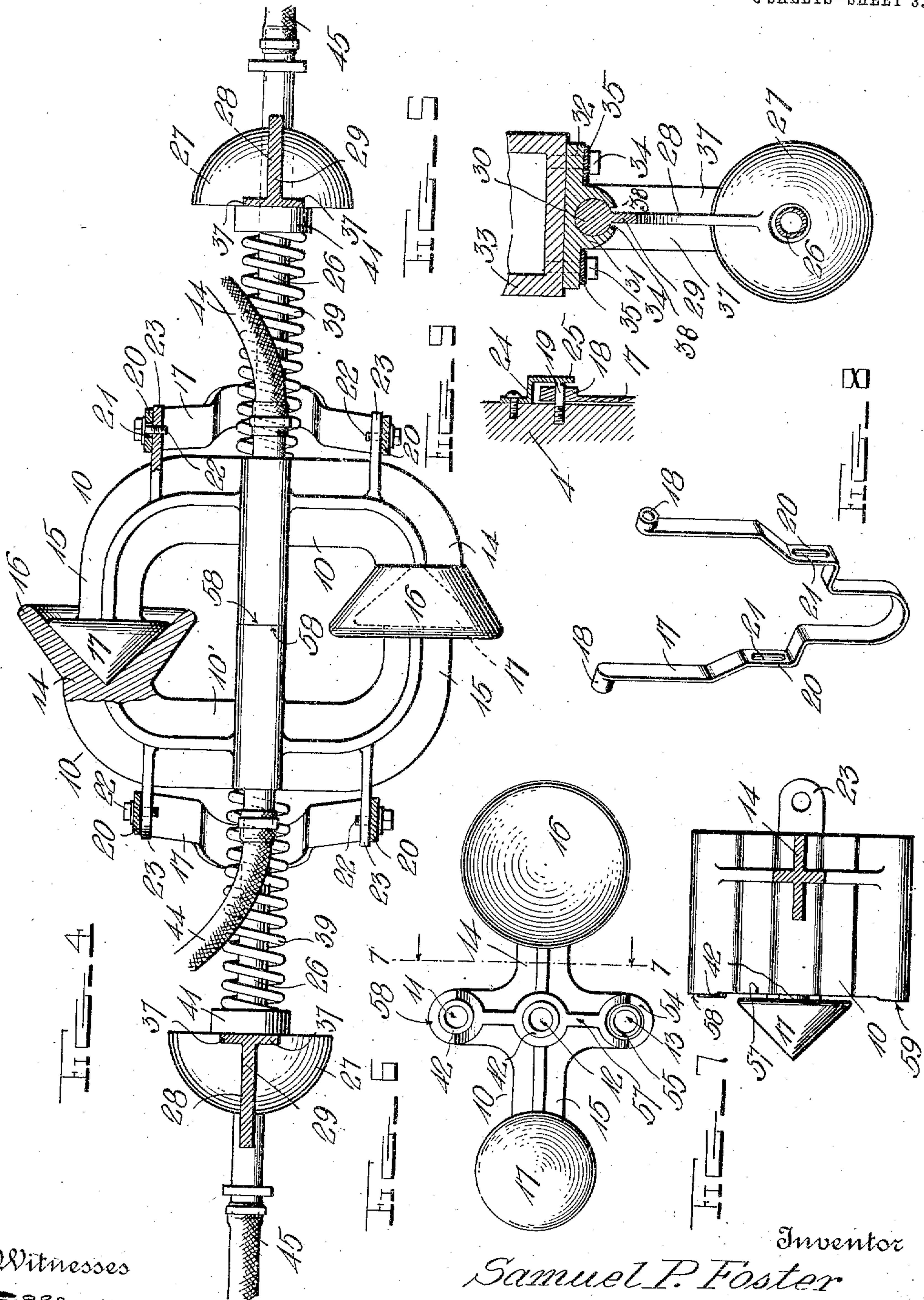
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UNITED STATES PATENT OFFICE.

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TRAIN-PIPE COUPLING.

966,393.

Specification of Letters Patent.

Patented Aug. 2, 1910.

Application filed November 17, 1909. Serial No. 528,583.

To all whom it may concern:

Be it known that I, SAMUEL P. FOSTER, a citizen of the United States, residing at East Chattanooga, in the county of Hamilton and State of Tennessee, have invented certain new and useful Improvements in Train-Pipe Couplings; and I do 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.

This invention relates to new and useful improvements in train pipe couplings.

The primary object of the present invention is to provide a simple coupling of the above class for connecting what is commonly known as the train or brake pipe, the signal valve pipe and the heating pipe.

A further object of the invention is to provide a coupling of the above class which will readily adapt itself to any vertical or sidewise movement of the car couplers without allowing any leakage.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a side elevation of a car coupler in coupled relation as applied to two adjacent cars shown partly in section. Fig. 2 is a plan view of the coupler and portions of the cars. Fig. 3 is a central longitudinal section taken through the coupling with the car coupler shown in elevation and the parts represented on an enlarged scale. Fig. 4 is a horizontal section taken on line 4—4 of Fig. 3. Fig. 5 is a vertical transverse section taken on line 5—5 of Fig. 3. Fig. 6 is an elevation of one of the coupling members. Fig. 7 is a transverse section taken on line 7—7 of Fig. 6. Fig. 8 is a detail perspective view of one of the hangers. Fig. 9 is a vertical transverse section taken through the upper end of one of the side pieces of the hanger and the means for mounting the hanger in position. Fig. 10 is an elevation of a modified form of coupling member, and Fig. 11 is a transverse section taken on line 11—11 of Fig. 10.

Referring to the drawings which are for illustrative purposes only and therefore not drawn to scale, the numerals 1 and 2 repre-

sent portions of two adjacent cars to which the coupling is applied, 3 and 4 the members of the car coupler, which may be of the Janney or any other approved type and are mounted between the beams 5 and 6 of the cars in the usual manner.

The numeral 7 indicates the brake pipe which is mounted beneath the cars in any suitable manner, 8 the signal pipe and 9 the heating pipe.

I will now describe the train pipe coupling, which consists of two parts, but as each part or section is of identical construction but one need be described.

Each section comprises a coupling member 10 which is formed in a single casting and comprises a body portion 10' provided with a plurality of vertically alined bores 11, 12 and 13, respectively. The body portion of the casting has extending from its central portion and opposite sides a pair of laterally-extending arms 14 and 15 at the outer end of the former of which is arranged an outwardly flared cone-shaped portion 16, and at the other end of the latter of which is formed a cone-shaped head or bearing portion 17. When the two sections of the coupler are in coupled relation, the head or bearing portion of one section fits in the flared or cone-shaped portion 16 of the other section as will be understood. The castings are supported upon the hangers 17 which are of approximately U-shape form and are provided at opposite ends with the bearing portions 18 which receive the threaded pins 19, whereby the hanger members are pivotally mounted upon the respective members of the car coupler. The side pieces 20 of the hanger members are provided with longitudinal slots 21 which receive screws 22, which pass through said slots and screw into cars or extensions 23, projecting from the inner sides of the castings. By thus connecting the castings with the hanger members the requisite vertical play is provided to compensate for the usual vertical swinging movement of the car coupler owing to irregularities of the track. Guard plates 24 are suitably secured to opposite sides of the respective members of the car coupler and are provided with offset depending portions 25 which are disposed over and form a protection for the bearing portions 18 of the hanger members and the pivot pins 19.

Metal coupling sleeves 26 have their outer ends extending into the central bores 12 of the castings 10 and their opposite or outer ends passing through the semi-spherical bearing portions 27 of the supporting brackets 28. The brackets 28 are provided with vertical webs 29 having formed at their upper ends rounded bearing portions 30 which are slidably mounted in the tubular portions 31 of the bearing plates 32, which are secured to the bottom faces of the body portions 33 of the car coupler members by the screws 34. Plates 35 are interposed between the bottom faces of the bearing plates 32 and the heads of the fastening screws 34 and are provided with out-struck portions 36 which engage the heads of said screws and hold them against working loose. It is to be understood, however, that any other suitable form of locking means for the screws may be employed. The web 29 of the supporting brackets 28 have formed at their front edges the lateral flanges 37 which are adapted to engage the outer ends of the bearing plates 32 and limit the rearward sliding movement of said bearing brackets. It is to be particularly observed that the side edges 38 of the tubular portions 31 of the bearing plates 32 are slightly spaced from opposite faces of the webs 29 of the bearing brackets, while the upper edges of the flanges 37 are disposed slightly beneath the bottom faces of the car coupler members to allow for a certain amount of side play or lateral swinging movement of the bearing brackets when the cars are rounding a curve.

Coil springs 39 are disposed around the coupling sleeves 26 with their opposite ends bearing against the inner faces of the castings and the extended portions 40 of the semi-spherical bearing members 41, the heads of which fit in the bearing portions 27 of the supporting brackets 28. The purpose of the springs 39 is to exert a tension upon the castings of the coupling members so that when said members are in coupled relation they will be held in tight engagement which will obviate any possibility of air or steam leakage between the castings. To further insure against any possibility of leakage rubber gaskets 42 are arranged in the outer ends of the bores 11 and 12 of the castings, and when the two castings are in coupled relation, the outer ends of the gaskets of one casting engage said ends of the gaskets in the other section. The gaskets are such that when the castings are separated, the outer ends thereof project slightly beyond the adjacent sides of the castings with the result that when the two sections are in coupled relation, the gaskets are held compressed, which insures a tighter engagement therebetween and provides an additional safe guard against the leakage of any air or steam.

Another reason for making the gaskets as above described, is that in the event of any slight separation between the castings, owing to any play of the car coupler, the gaskets will readily expand so that their meeting ends will still be in engagement. The coupling sleeves 43 project into the inner ends of the bores 12 of the castings and are connected with the signal pipe by any suitable flexible means, such for example, as the hose 44. The hose 44 and the hose 45 extending from the coupling sleeves 26, are connected with the signal pipe and brake pipe 8 and 9, respectively, by the two-way valves 46, the plugs of which are provided with the outwardly extending operating rods 47 having the handle portions 48, whereby the plugs may be turned to establish communication through the brake and signal valve pipes and to cut off communication between said pipes and the hose 44 and 45, or whereby the plugs of said valves may be turned to establish communication between the brake and signal pipes and the hose 44 and 45 and to close said pipes against the passage of any fluid there-through beyond the location of said valves. Coupling sleeves 49 are screwed in the inner ends of the lower bores 13 of the castings and are connected with the steam pipe by any suitable flexible means, such as the hose 50. Bearing disks 51 are slidably mounted in the bores 13 of the castings and have their outer faces suitably recessed as at 52, to form seats for the spherical heads 53 of the sleeves 54, the outer ends of the stems 55 of which are adapted to engage when the coupling members are in coupled relation. Coil springs 56 are arranged in the bores 13 of the castings between the inner ends of the disks 51 and coupling plugs 49 and exert pressure against the former, whereby the stems 55 of the hollow sleeves 54 are maintained in secure engagement, or are projected and still maintained in engagement should the castings become slightly separated for reasons heretofore made known. The outer ends of the body portions of the castings 10 are recessed as at 57 and 58 to provide the arcuate shoulders 59. When the two members of the coupler are in coupled relation, the shoulders 59 of one casting work against those of the other casting. When the coupler is to be applied to freight cars where the signal pipe and heating pipe are not used, the body of the casting is only provided with a central bore 12, and the tubular portions of the casting forming the bores 11 and 13 are made solid. By manipulating the operating rods 48, the passage of air or steam through the brake signal valve or heating pipe may either be cut off or established through the coupling. Another advantage in providing the valves 46 and operating rods 47 is that a car equipped with

one member of my improved coupling may be coupled with another car provided with the old means of connection between the train pipes as the plugs of the valves 46 may be
 5 turned to cut off communication between the sections of the train pipes carried by the car equipped with one member of my improved coupling but still permit the passage of steam and air through the said pipe sections to the old connections.
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From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without
 15 requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention, as defined in the appended claims.
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What is claimed as new is:

1. A train pipe coupling comprising a pair of hanger members pivotally mounted upon the respective members of the car coupler and provided in their side pieces with longitudinal slots, castings having portions extending through the slots of the hanger members and provided with a plurality of
 25 vertically-alined longitudinal passages, supporting brackets having a limited sidewise play mounted beneath the respective members of the car coupler, coupling sleeves extending into the central passages of the castings and through the lower ends of the supporting brackets, flexible means of connection between said coupling sleeves and the brake pipe, coil springs around the coupling sleeves to hold the latter pressed together
 30 and flexible means of connection between the upper and lower passages of the castings and the signal and heating pipes of the train.
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2. In a train pipe coupling, bearing plates having tubular longitudinally recessed portions mounted beneath the respective members of the car coupler, supporting brackets having vertical webs provided at their upper edges with rounded bearing portions seating in the tubular portions of the bearing plates, the width of the webs being somewhat less than that of the recesses of the bearing plates to provide for a limited side play of the supporting brackets, castings mounted beneath the respective members of the car coupler,
 45 said castings having vertical alined longitudinal passages, coupling sleeves extending into the central passages of said castings and through the supporting brackets, flexible means of connection between said sleeves and the brake pipe of the train and other flexible means of connection between the upper and lower longitudinal passages of the castings and the signal and heating pipes of the train.
 50

dinal passages, coupling sleeves extending into the central passages of said castings and through the supporting brackets, flexible means of connection between said sleeves and the brake pipe of the train and other flexible means of connection between the upper and lower longitudinal passages of the castings and the signal and heating pipes of the train.
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3. A train pipe coupling, comprising a pair of hanger members pivotally mounted upon the respective members of the car coupler, castings supported by said hanger members, means of slidable engagement between the hangers and castings, whereby the latter are capable of limited vertical play, supporting brackets mounted beneath the respective members of the car coupler, coupling sleeves extending into the castings and through the lower ends of the supporting brackets, flexible means of connection between said sleeves and the brake pipes, coil springs around the coupling sleeves to hold the castings in yieldable engagement and flexible means of connection between the upper and lower passages of the castings and the signal and heating pipes of the train.
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4. In a train pipe coupling, bearing plates having longitudinal recessed portions mounted beneath the respective members of the car coupler, supporting brackets having vertical webs provided at their upper edges with rounded bearing portions seating in the tubular portions of the bearing plates, said brackets being capable of a limited side play, castings provided with vertically alined longitudinal passages mounted beneath the respective members of the car coupler, coupling sleeves extending into the central passages of said castings and through the supporting brackets, flexible means of connection between said sleeves and the brake pipe of the train and other flexible means of connection between the upper and lower longitudinal passages of the castings and the signal and heating pipes of the train.
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In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

SAMUEL P. FOSTER.

Witnesses:

E. EDMONSTON, Jr.,
 JOHN P. DUFFIE.