

No. 649,472

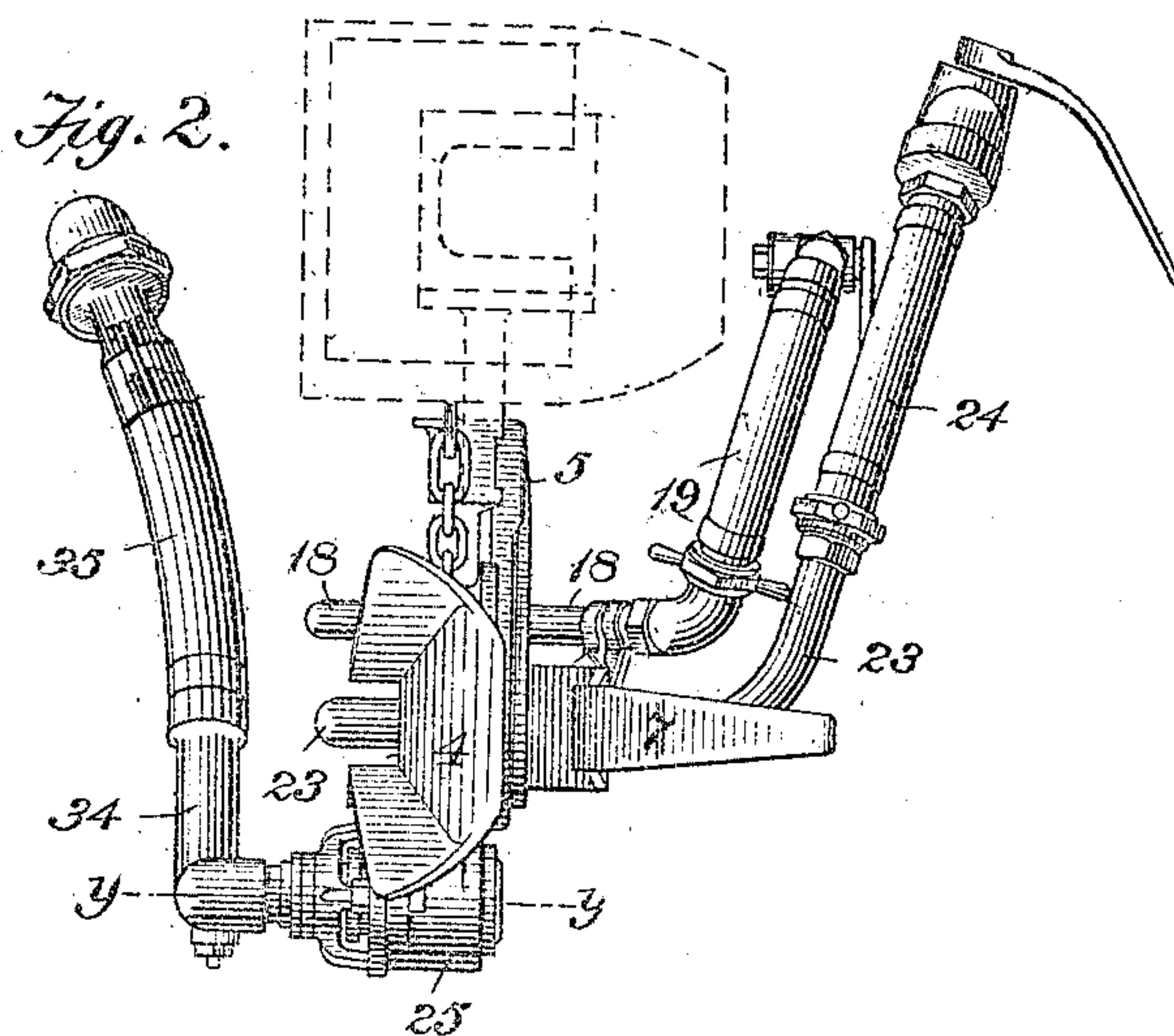
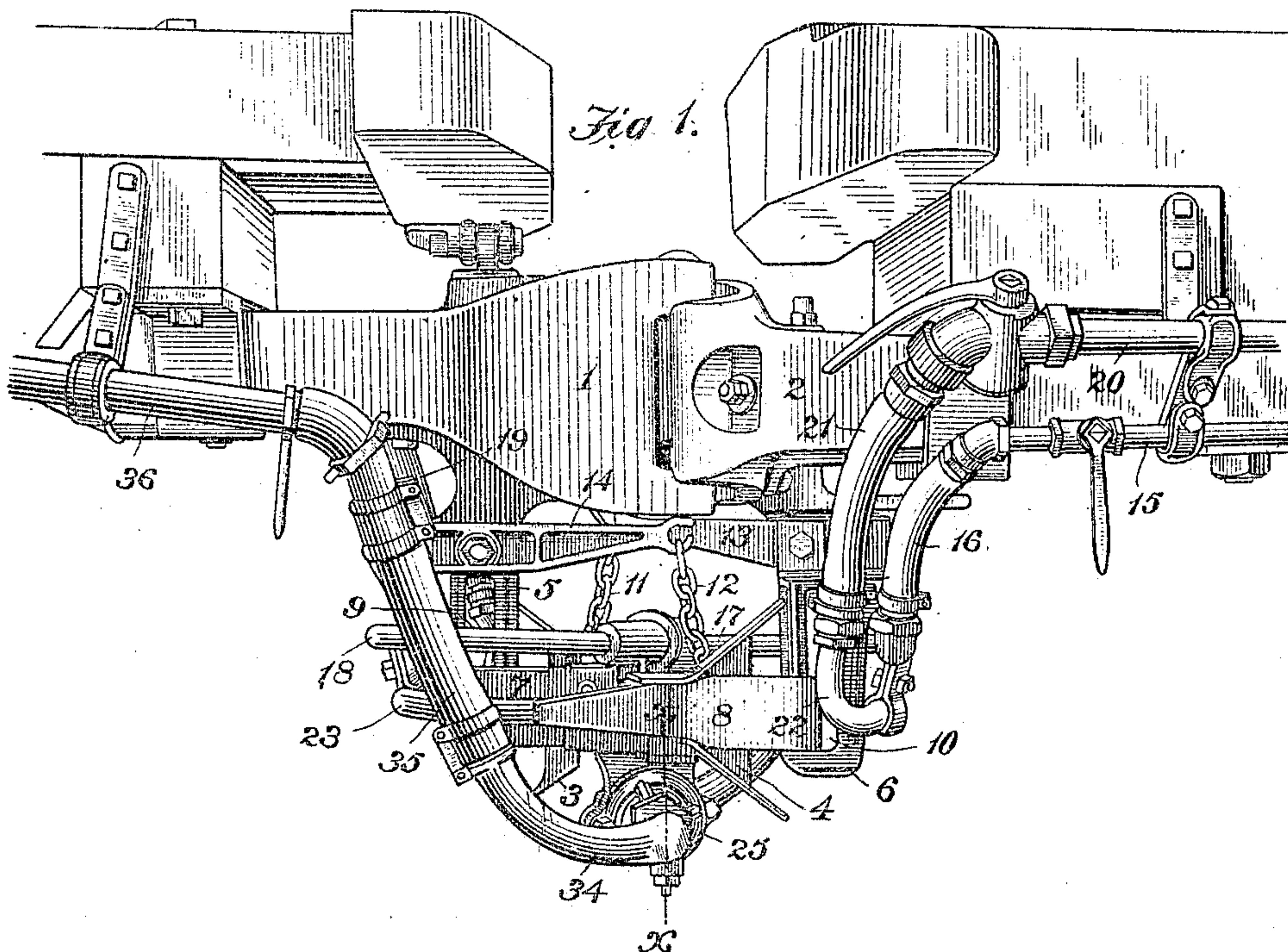
Patented May 15, 1900.

N. F. NIEDERLANDER.  
AUTOMATIC STEAM COUPLING.

(Application filed June 17, 1898.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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*by T. J. Hogan*  
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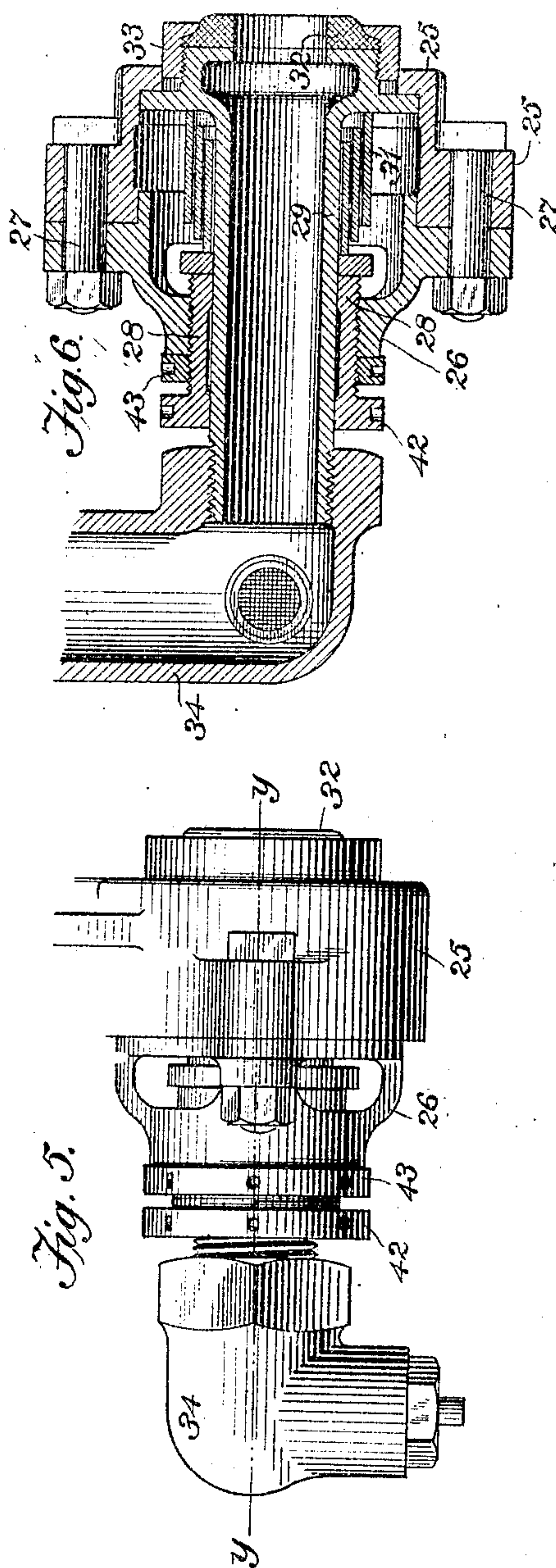
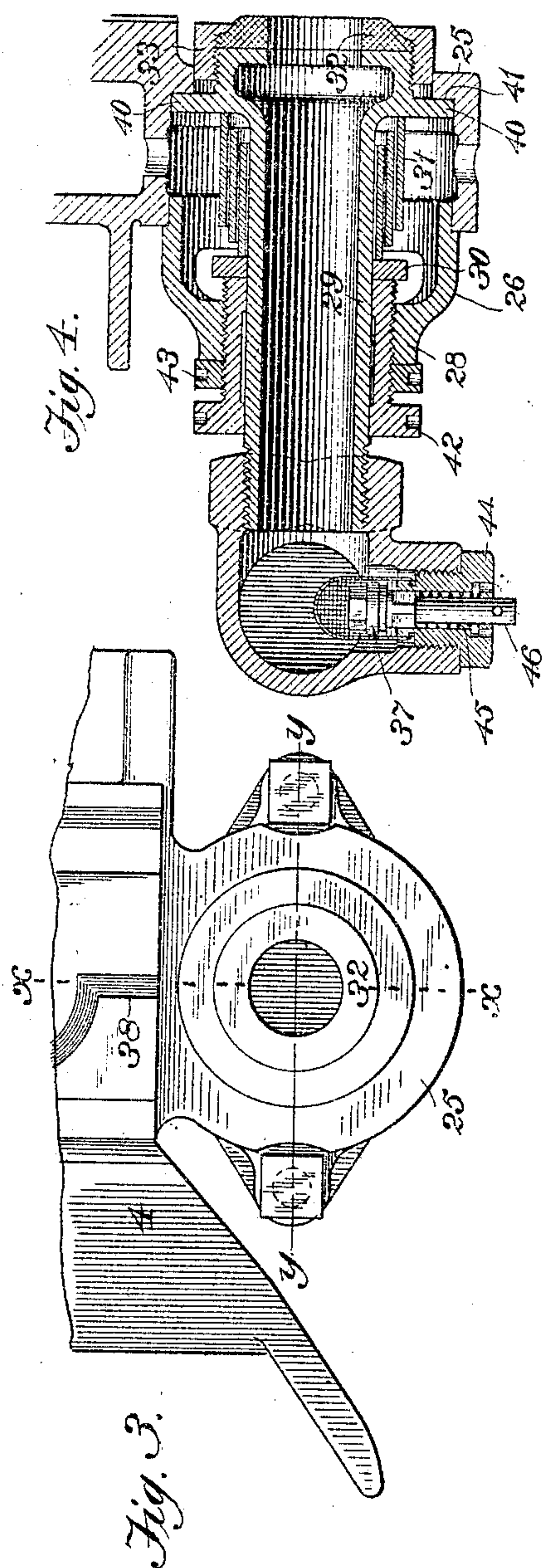
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## AUTOMATIC STEAM COUPLING.

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(No Model.)

2 Sheets—Sheet 2.



**WITNESSES:**

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# UNITED STATES PATENT OFFICE.

NICHOLAS F. NIEDERLANDER, OF ST. LOUIS, MISSOURI.

## AUTOMATIC STEAM-COUPLING.

SPECIFICATION forming part of Letters Patent No. 649,472, dated May 15, 1900.

Application filed June 17, 1898. Serial No. 683,739. (No model.)

*To all whom it may concern:*

Be it known that I, NICHOLAS F. NIEDERLANDER, a citizen of the United States, residing at St. Louis, in the State of Missouri, have  
5 invented or discovered a certain new and useful Improvement in Automatic Steam-Couplings, of which improvement the following is a specification.

The object of my invention is to provide an  
10 improvement in automatic pipe-couplings for railway-cars; and to this end it consists in a new and improved means for connecting the steam-pipes of cars, in the combination of such means with an automatic air-pipe coupling, and in certain combinations and fea-  
15 tures of construction, all as hereinafter set forth.

In the accompanying drawings, Figure 1 is a perspective view showing a car-coupling  
20 and an automatic pipe-coupling attached thereto and provided with my improvement; Fig. 2, a view at right angles to that shown in Fig. 1 of an automatic pipe-coupling device provided with my improvement; Fig. 3,  
25 a view in elevation of part of one of the half-sections of an automatic pipe-coupling device with my improved steam-pipe-coupling device applied thereto; Fig. 4, a section on the line *x x* of Figs. 1 and 3; Fig. 5, an ele-  
30 vation at right angles to that shown in Fig. 3; Fig. 6, a section on the line *y y* of Figs. 2, 3, and 5.

My present invention is specially adapted to be employed in combination with an auto-  
35 matic pipe-coupling device of the class shown in my Patent No. 582,672, of May 18, 1897, in which the half-sections of this coupling device are provided with lateral openings connected with the air-pipes under the cars and  
40 in which the half-sections are adapted to be automatically coupled, so that the lateral openings therein will register, by the movement of the cars to which they are attached, without requiring any manipulation by the  
45 trainmen. While my improvement is specially adapted to be employed in combination with this form of air-pipe coupling, it will be obvious that its employment is not limited to this particular form of coupling, but that it  
50 may be employed with other forms.

In Fig. 1 of the drawings an automatic pipe-coupling of the same general class as that shown in my patent already referred to is shown attached to the half-sections 1 and 2 of the car-coupling device, the half-sections 55 3 and 4 of the pipe-coupling device being loosely connected to the brackets 5 and 6 by means of the springs 7 and 8, passing through the openings 9 and 10 therein, and by means of the chains 11 and 12 and the arms 13 and 14, which are secured to the brackets 5 and 6.

The air-signal train-pipe 15 on one car is connected, by means of a flexible pipe or hose 16 and a section of rigid pipe 17, with the back of the half-section 3 of the pipe-cou- 65 pling device, and the passage therethrough communicates with the passage through the similar pipes 18 and 19, connected with the half-section 4 of the pipe-coupling and with the air-signal train-pipe on the next car. 70

The air-brake train-pipe 20 is connected, by means of the flexible pipe or hose 21 and the pipe 22, with the half-section 3 of the pipe-coupling, and the passage through these pipes is connected, by means of the registering open- 75 ings in the two half-sections of the pipe-coupling, with the passage through the pipes 23 and 24, which connect with the air-brake train-pipe on the next car.

As shown in Figs. 1, 2, and 3 of the draw- 80 ings, my improved steam-pipe-coupling device is applied to the lower portion of the half-sections of the air-pipe-coupling device, and as the two half-sections of the air-pipe coupling and my improvement as applied to each 85 of them are in all respects duplicates the description of that portion of my improvement applied to the half-section 4 will be sufficient.

As shown in the drawings, an integral ex- 90 tension 25 projects downward from the half-section of the air-pipe coupling and forms a bracket to which the steam-pipe-coupling device is secured. A guide-frame 26 is rigidly secured to the bracket or extension 25 by means of bolts 27, and a bushing 28 is screwed 95 therein and forms a guide for a pipe 29 and an abutment for a washer 30, against which bears one end of a spring 31. The opposite end of the spring 31 bears against a flange on the pipe 29 and normally holds it pressed 100



against a shoulder on the extension or bracket 25. On the end of the pipe 29 is secured a gasket 32 by means of a clamping-piece 33, which is secured on the end of the pipe and which is fitted to slide in an opening in the bracket 25. The opposite end of the pipe 29 is secured to a section of pipe 34, which is connected by a flexible pipe or hose 35 with the steam train-pipe 36.

The section of flexible hose 35 and the construction by which the pipe 29 is held in the bracket 25 permit a slight rotary movement of the pipes 29 and 34; but this motion is preferably limited, so that the end of the pipe 34 where it joins the pipe 29 will always be at its lowest point, so as to prevent the accumulation of water at any point where it cannot be drained through the passage controlled by the valve 37.

The gasket 32 on the end of the pipe 29 is adapted to engage with a similar gasket on the other half-section of the pipe-coupling and to make therewith a tight joint around the registering steam-passages through which the passages in the pipe 29 in the two half-sections of the pipe-coupling are put into communication.

The half-sections 3 and 4 of the air-pipe-coupling device shown in the drawings are coupled by a longitudinal movement as the cars approach each other and also by a lateral movement when the passages through them have reached the proper positions, opposite to one another, to permit them to register with one another when the gaskets are brought together by the lateral movement. During the longitudinal movements of the half-sections toward each other they are held apart by portions of the face of the half-sections, as 38 in Fig. 3, which project beyond the gaskets surrounding the ports or openings in the half-sections, and injury to the gaskets is thereby prevented.

In my improved steam-pipe-coupling device the outward movement of the pipe 29 and gasket 32 is limited by the flange 40, which abuts against a shoulder on the bracket 25, and the gasket 32 does not project far enough to come in contact with the other half-section of the coupling or with the gasket surrounding the steam-passage of that coupling during the relative longitudinal movement of the parts.

When the openings in the half-sections for air and steam are opposite to one another and moving laterally into position to register, the gaskets 32 of the steam-coupling device will engage one another and make a tight joint around the openings, and the gaskets and the pipe 29 will be pushed back from the positions which they occupy when the half-sections are uncoupled, so that the flanges 40 on the pipes 29 are disengaged from the shoulders 41. The gaskets 32 are held together by the pressure of the springs 31, and each pipe 29 and gasket 32 is adapted to yield to pres-

sure or to follow up the parts in the other half-section in case of any movement of the pipes, half-sections, or other parts, such as may occur in actual practice.

The tubular guide 28 is adapted to be adjusted, by means of screw-thread connection, with the guide-frame 26 by turning the head 42, and the guide 28 is prevented from accidental turning by means of the clamping-nut 43.

A chamber or space around the pipe 29 is formed in the bracket 25 and in the guide-frame 26, and openings are provided whereby the chamber may be drained and a circulation of air therethrough permitted.

A valve 37 controls a passage through a plug 44, through which passage water may be drained from the pipes, the valve-seat being located below the lowest point in any of the pipes and the valve being held open by a spring 45 when the pipes are relieved from the pressure of the steam. When the pipes are connected and steam under pressure is supplied thereto, the pressure of the steam will force the valve 37 to its seat and the passage through the plug will be closed. The passage may be opened from the outside by pressing the stem 46 inward, and any water which may have accumulated in the pipes will then be blown out.

I claim as my invention and desire to secure by Letters Patent—

1. A coupling device for steam-pipes, comprising a longitudinally-movable pipe attached to a half-section of an air-pipe-coupling device, and adapted to move transversely to the face of the half-section.

2. A pipe-coupling device for railway-cars, comprising a half-section adapted to be coupled to another similar half-section, a tubular member, or pipe, mounted in a guide and adapted to move longitudinally therein, means for limiting the movement in one direction, a spring for offering a yielding resistance to movement in the opposite direction, a gasket on one end of the tubular member, or pipe, and means for connecting the opposite end with a train-pipe, so as to form a continuous closed extension of the train-pipe, which is movable in the half-section.

3. The combination, with a half-section of an automatic air-pipe-coupling device, of a steam-pipe-coupling device, comprising a tubular member, or pipe, having a gasket secured on one end, a spring tending to resist movement of the tubular member in one direction, and a guide for the tubular member which forms an abutment for the spring and which is adapted to be adjusted to vary the resistance of the spring.

4. In an automatic coupling device for railway-cars, a half-section adapted to be coupled to another similar part, a longitudinally-movable member, or pipe, in the half-section, and extending therethrough which is provided at one end with means for making



a joint with a similar member on another half-section, and which is so fitted in the half-section and connected at its other end with a train-pipe as to be capable of a partial rotary movement.

5 5. The combination, with an automatic air and steam pipe coupling of an automatic drainage valve located between the steam-

coupling and the flexible hose connecting the coupling with the train-pipe.

In testimony whereof I have hereunto set my hand.

NICHOLAS F. NIEDERLANDER.

Witnesses:

THOMAS EWING, Jr.,

W. G. DOOLITTLE.

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