

(No Model.)

2 Sheets—Sheet 1.

N. NILSON.
STEAM PIPE COUPLING.

No. 420,210.

Patented Jan. 28, 1890.

Fig. 1.

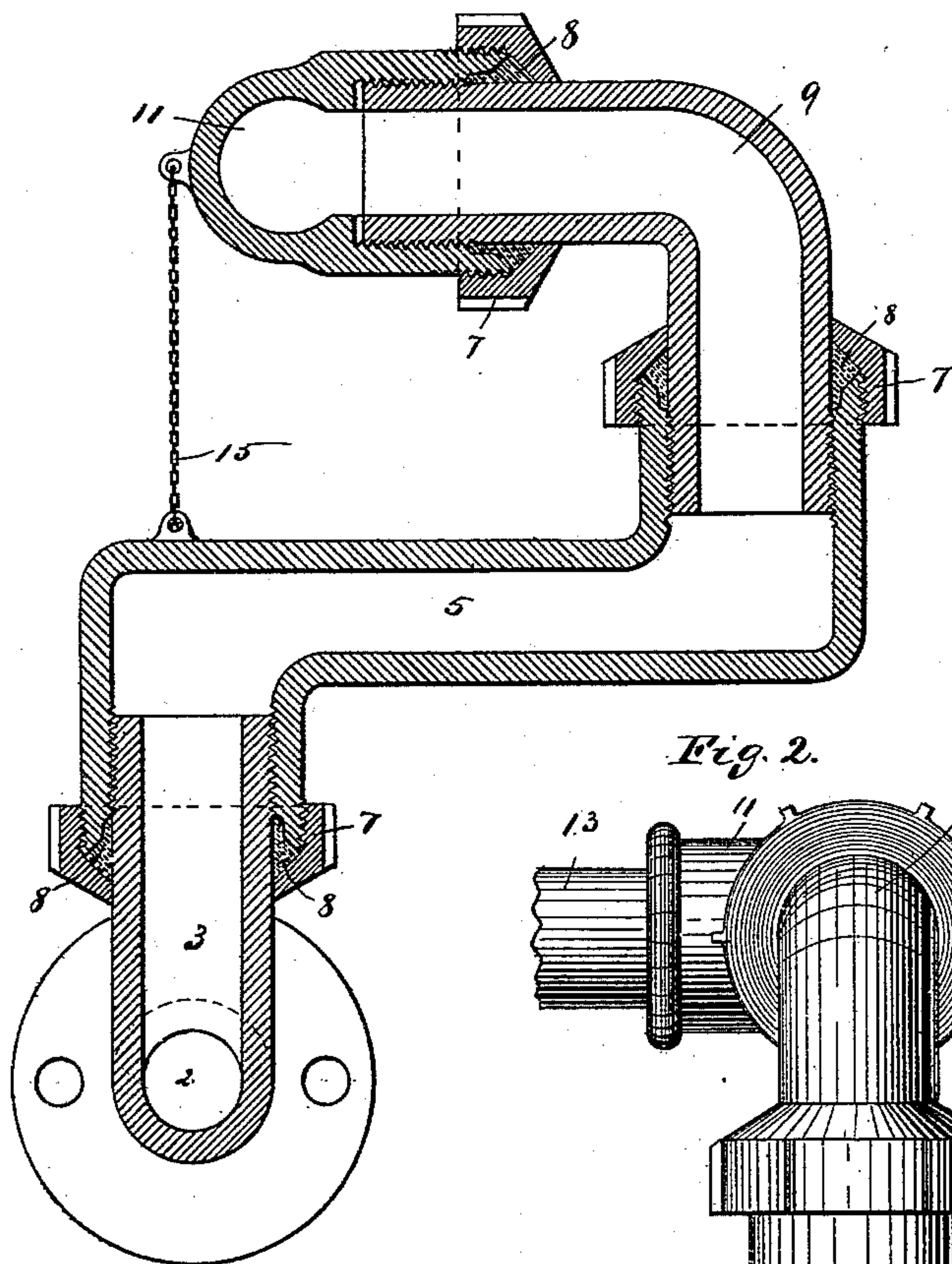
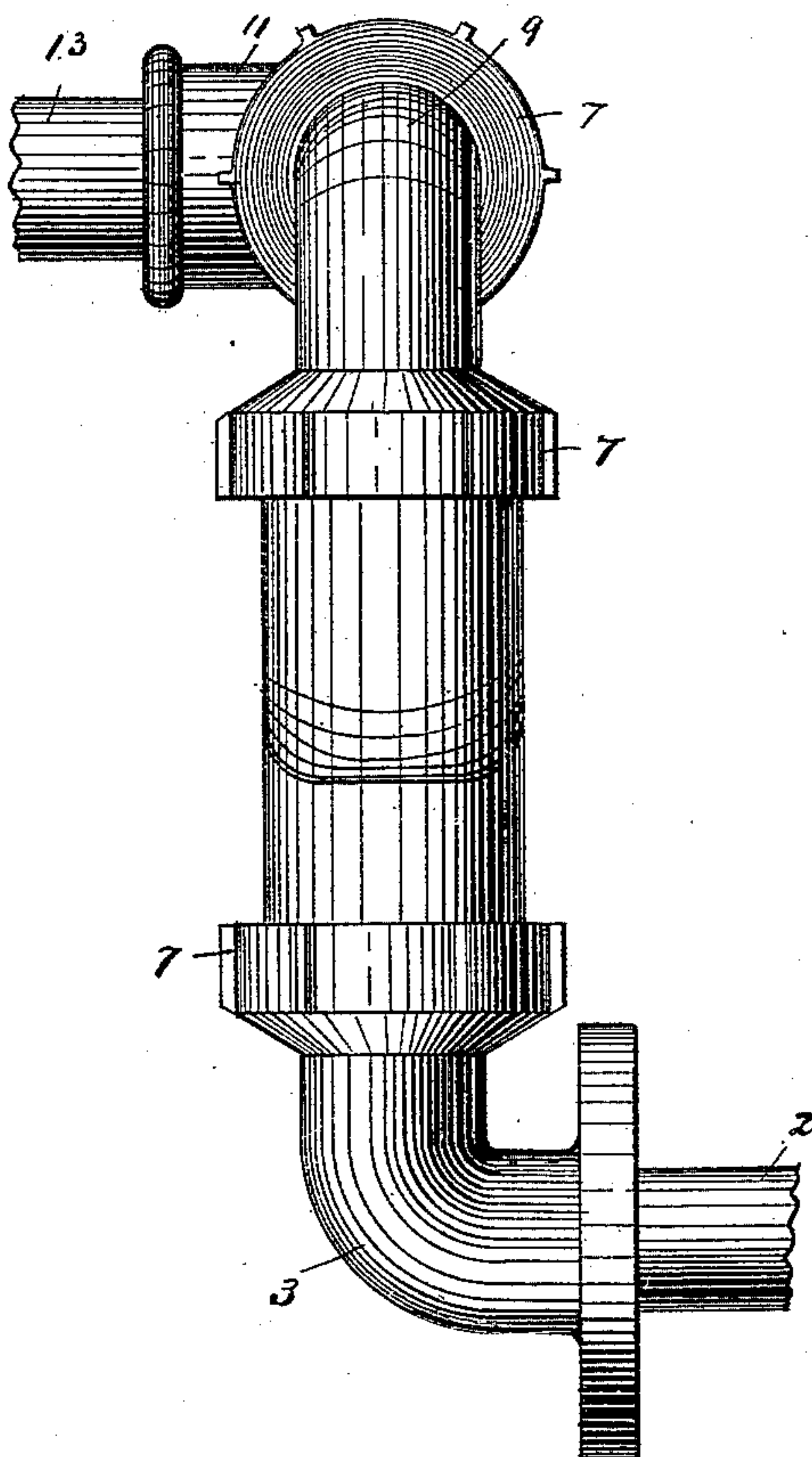


Fig. 2.



Witnesses.

J. Jensen.
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Inventor.

Nils Nilson.

By Paul Sanford & Henry Atty.

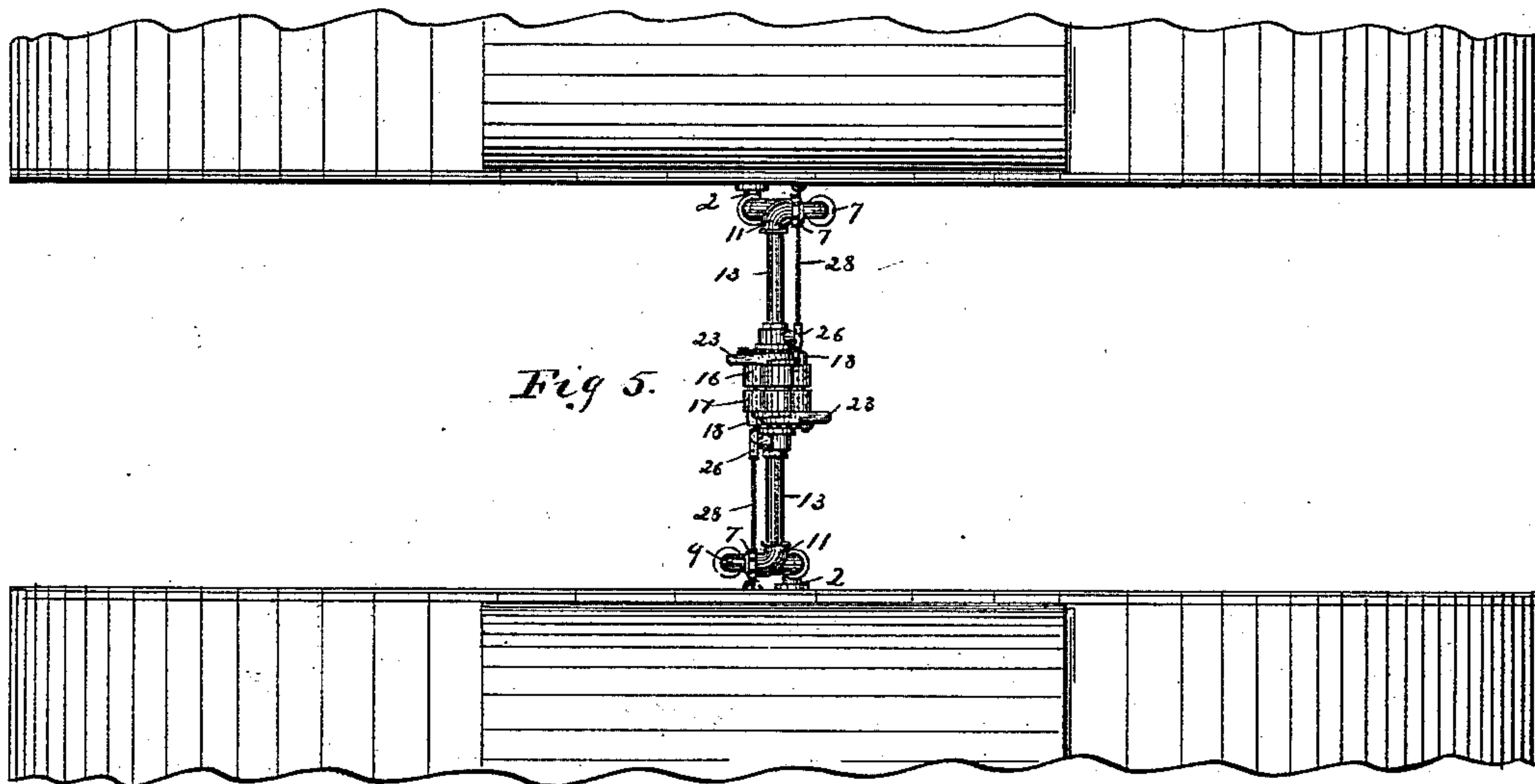
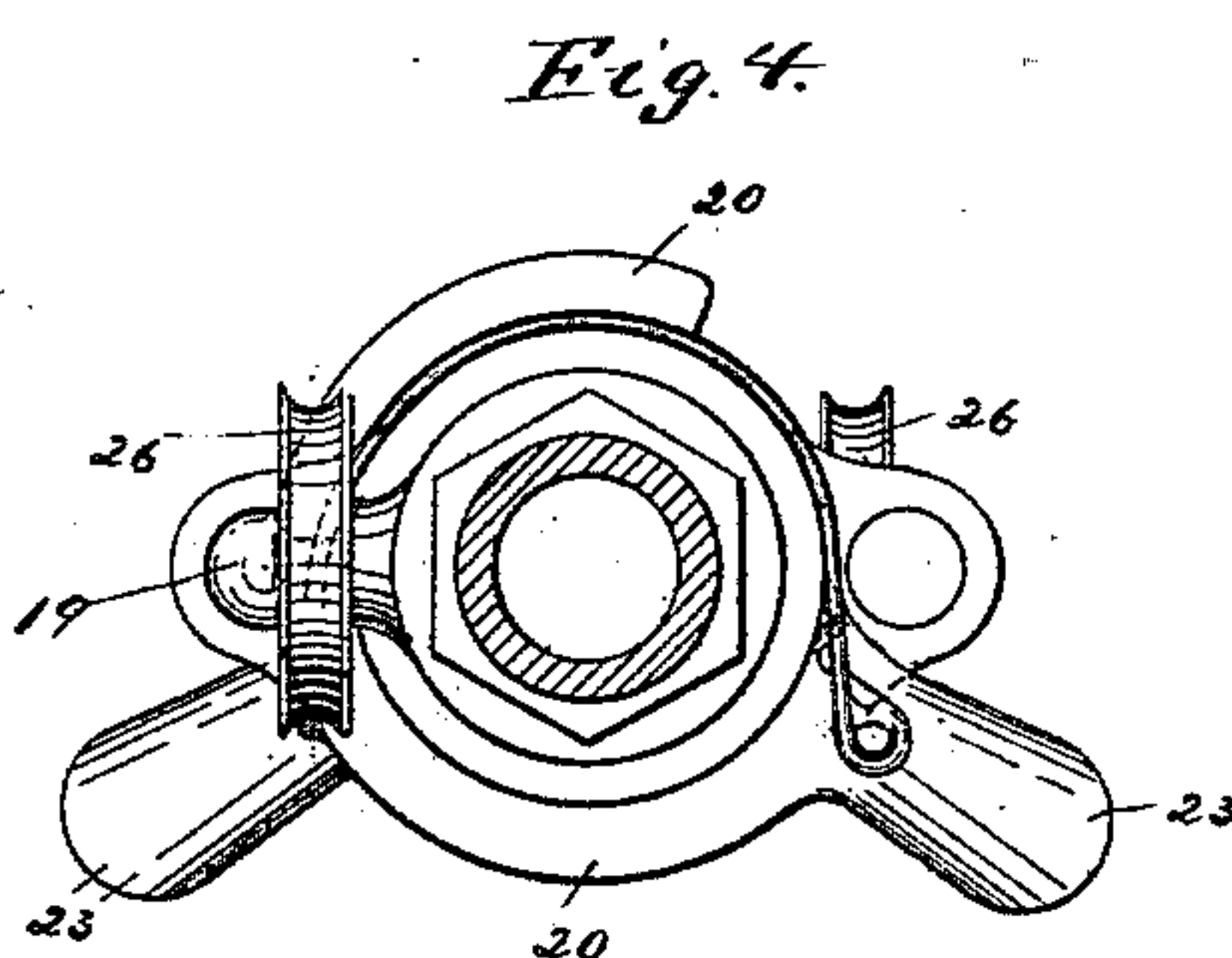
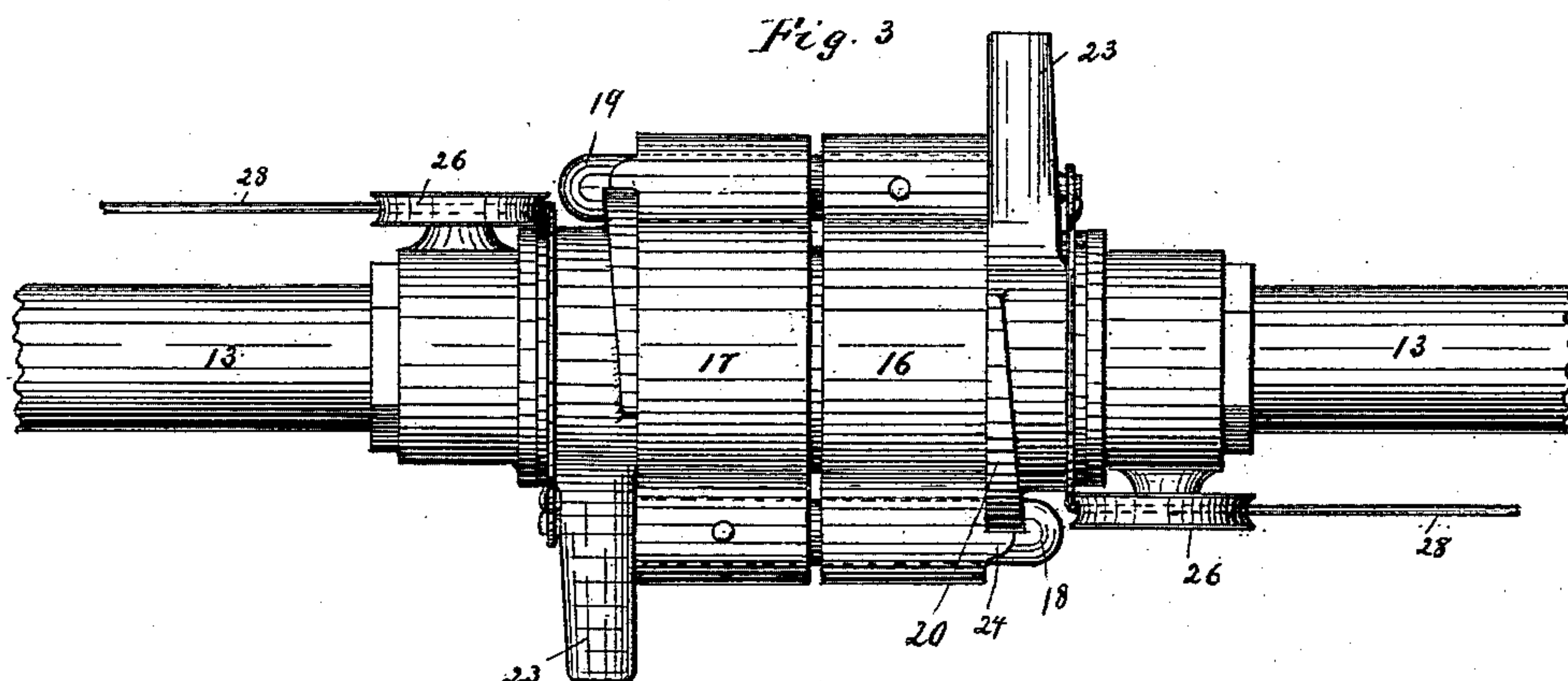
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UNITED STATES PATENT OFFICE.

NILS NILSON, OF MINNEAPOLIS, ASSIGNOR TO THE NORTHWESTERN MODERN
CAR HEATING AND LIGHTING COMPANY, OF ST. PAUL, MINNESOTA.

STEAM-PIPE COUPLING.

SPECIFICATION forming part of Letters Patent No. 420,210, dated January 28, 1890.

Application filed September 10, 1888. Serial No. 284,994. (No model.)

To all whom it may concern:

Be it known that I, NILS NILSON, of Minneapolis, county of Hennepin, and State of Minnesota, have invented certain Improvements in Steam-Pipe Couplings, of which the following is a specification.

My invention relates to improvements in the manner of connecting pipes for steam or water circulation between the cars of a railway-train in such a manner as to allow for the variation incident to the motion ordinarily occurring between the two cars of the train, and also to allow the pipes to be automatically uncoupled if the cars become detached from each other.

My invention consists, generally, in the construction and arrangement hereinafter described, and particularly pointed out in the claims.

In the drawings which form a part of this specification, Figure 1 is a vertical cross-section taken through the center of the swiveling joint or connection for the steam-pipe. Fig. 2 is an end elevation of the same. Fig. 3 is a plan view of the automatic coupling between the two sections of the pipe. Fig. 4 is a section through the pipe, showing the automatic coupling in the elevation. Fig. 5 is a plan view showing the coupling in position between the cars.

In the drawings, 2 represents the end of the pipe which conveys the steam or water through the train. At the point where this pipe leaves the car it is provided with a suitable elbow 3. The upper extremity of this elbow is screw-threaded upon its outer surface. An arm 5 is provided to form a continuation of the pipe constructed with a right-angular bend at each end extending in opposite directions. The interior opening at the center of each of these bends is screw-threaded, and the lower one is arranged to receive the screw-threaded portion of the elbow 3. The exterior of the end of this elbow is also screw-threaded and receives a spanner-nut 7. Between the interior of the spanner-nut and the end of the arm a space is left for the reception of a packing-ring 8. This packing bears against the outer circumference of the elbow, and, by turning down the nut, it is forced against the said

elbow and the space securely sealed and leakage prevented. The screw-thread upon the interior of the arm engaging the screw-threaded elbow makes a comparatively tight joint; but as there is a certain amount of swiveling motion necessary between these two parts it is possible that the steam may leak past the thread. If this should occur, it is prevented from escaping by the packing-ring 8. The opposite end of the arm 5 is provided with a swiveling coupling substantially similar to that already described. An elbow 9 is here attached which turns backward in line with the arm 5. An elbow 11 is secured to the elbow 9 by a similar swiveling coupling, and by this elbow the direction of the pipe is again changed to be in line with the main steam-pipe 2.

A short section-pipe 13 is attached to the elbow 11, and to the opposite end of this pipe the automatic coupling device is secured.

It will be seen that three swivel-joints are provided, all securely packed, which will allow for a certain amount of forward or lateral movement between the two cars.

A chain 15 is preferably provided, and is secured between the outer extremities of the arm 5 and the elbow 11. The length of this chain is such as to limit the movement of these two portions of the coupling and prevent them from becoming straightened. The swiveling motion obtained, as described, by the parts partially revolving in screw-threaded bearings supports the coupling and keeps the whole in its proper position without any other means being introduced to hold the parts in their relative positions, and the motion is so slight that the wear upon the thread will be imperceptible.

16 and 17 represent the two halves of the automatic coupling for releasing or separating the pipe when the cars are detached. The pipe 13 is properly secured to one-half of the coupling, and an opening is constructed through the center of each portion for the passage of steam or water. Around this opening and projecting slightly beyond the face of the couplings a gasket of rubber or other flexible material is placed. As the two halves of the coupling are brought together these

gaskets will be brought in contact with each other and form a tight joint. A pin 18 is provided and is secured to the portion 17 of the coupling and passes through an opening 5 in the portion 16. A similar pin 19 is secured to the portion 16 of the coupling and passes through the portion 17. These two pins are oppositely placed or located upon the coupling and serve as a guide to bring 10 the two faces of the coupling together. Each of the pins is provided with a notch or recess 20 near its outer extremity, and a cam 21 is arranged to revolve upon the hub of the coupling and engage in this recess.

15 The cam 21 may be provided with a handle 23, by which it is operated. The face of the cam which engages the recess in the pin is preferably inclined, so that by turning the cam the pins are drawn upon this incline 20 and the two halves of the coupling firmly and tightly secured together. A stop 24 is formed upon each half of the coupling and engages the handle 23 as the cam is thrown back around the hub. When both cams are 25 in this position, they are out of engagement with the pins 18 and 19, which are then free to be removed and two halves of the coupling separated.

In order to arrange the coupling to be automatically separated, I provide each hub with 30 a sheave or roll 26. A cord 28 passes under this sheave and over a grooved portion of the cam and is secured to the handle 23. The opposite end of this cord is secured to the 35 car. When the cars become detached from each other, the motion will straighten the joints of the swivel-couplings and bring the tension upon the cord 28, causing the cam to be revolved about its hub until the handle 40 strikes the top 24, when the cam will be free from the pin and the pin will be drawn out of its place in the coupling and the pipes between the cars automatically released without causing any undue strain brought upon 45 them. Sufficient slack may be allowed in the cord 28 to give any ordinary variation necessary between the two cars.

I claim as my invention—

50 1. In a pipe-coupling for railway-cars, a swiveling coupling for attaching or connecting pipes between the cars of a railway-train,

consisting of the hollow arm 5, having the angular bend at each end extending in opposite directions, the elbows 3 and 9, connected with the bends of said arm by the screw- 55 threaded joints, the joint 11, connected by a screw-threaded joint to the elbow 9, the nuts 7, applied at the junctions of said elbows and the packings 8, the said parts permitting a vertical, lateral, and longitudinal movement 60 of the coupling at the joints, substantially as described.

2. In a pipe-coupling, the combination, with the hollow arm 5, having the angular bend at each end extending in opposite directions, as 65 shown, of the elbows 3 and 9, engaging screw-threaded openings in said bends, so as to turn therein, nuts embracing said elbows and engaging an exterior screw-thread on the bends of said arm 5, and packings 8 between the 70 ends of the arm and the nuts and bearing upon the exterior surface of the elbow, substantially as described.

3. In a pipe-coupling for railway-cars, the combination, with the pipe 13, of the coup- 75 lings 16 and 17, secured to said pipe, the pins 18 and 19, one to each coupling, passing through said couplings on opposite sides thereof and in opposite directions to each other and notched at their ends, and the cams 80 21, revolving on said pipe and fitting in the notches of the pins to engage the pin on one side and the couplings on the other side, substantially as and for the purposes set forth.

4. In a pipe-coupling for railway-cars, the 85 combination, with the pipe 13, of the two halves of the coupling 16 and 17, provided with pins 18 and 19, cams 21, engaging said pins, revolving on a suitable hub on said pipe 13, a sheave journaled on said hub, and the 90 cord 28, passing over said sheave and secured to the said cam, whereby when tension is brought upon the cord the cam will be partially revolved and the pins released, substantially as described. 95

In testimony whereof I have hereunto set my hand this 9th day of June, 1888.

NILS NILSON.

In presence of—

R. H. SANFORD,
C. L. NACHTRIEB.