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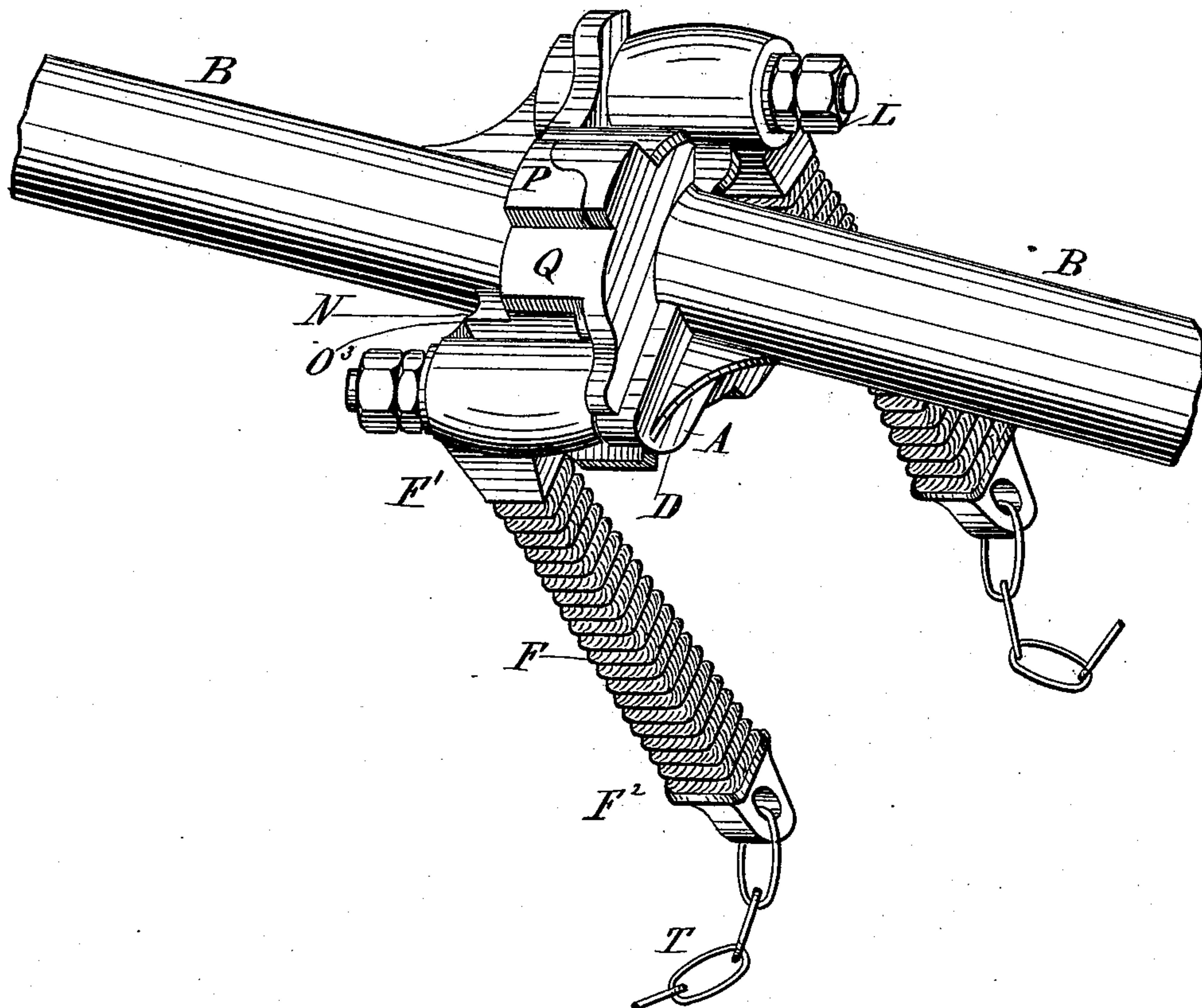
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J. C. BAYLES.  
PIPE COUPLING.

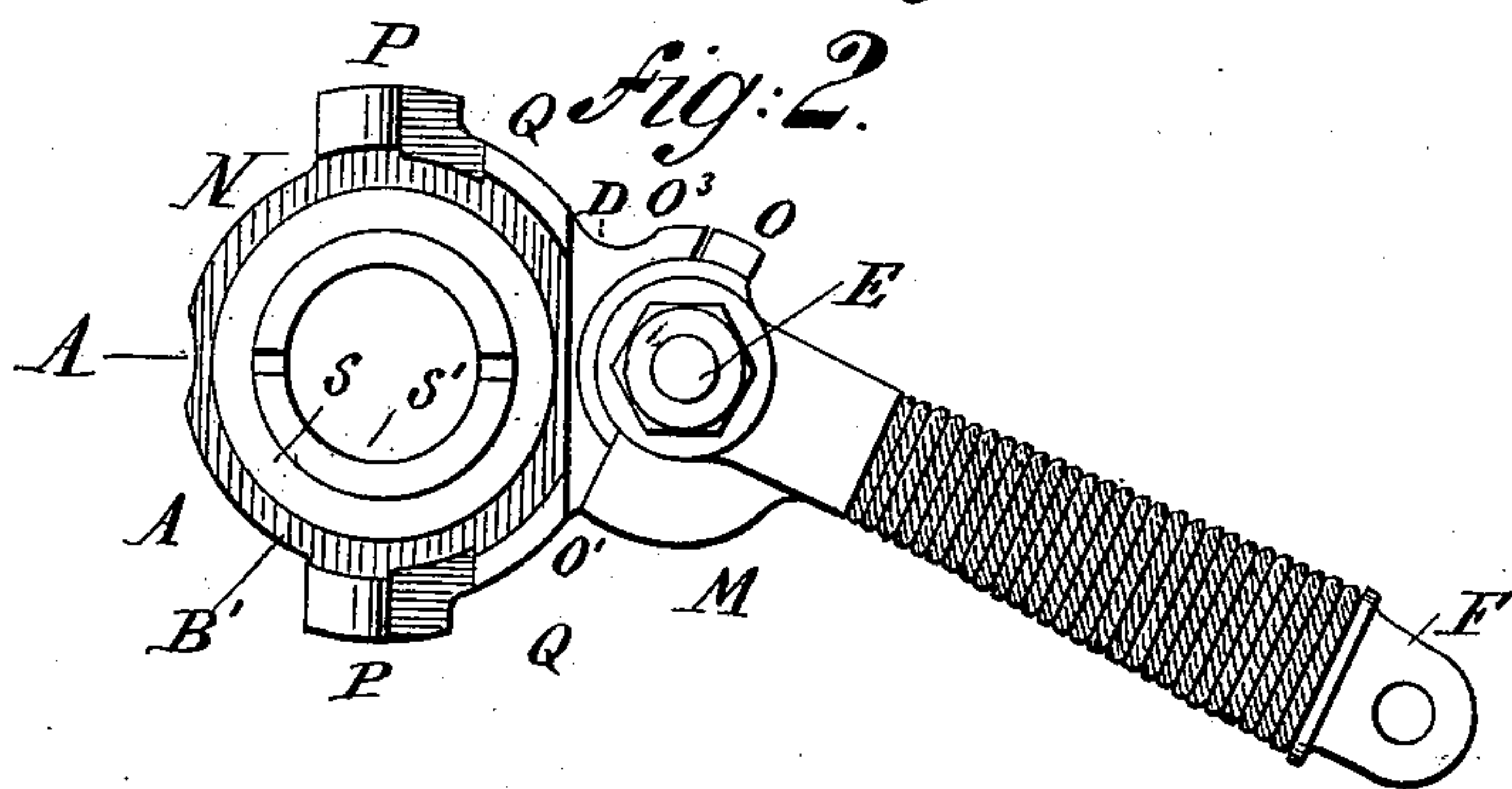
No. 400,822.

Patented Apr. 2, 1889.

*fig:1.*



*fig:2.*



WITNESSES:

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*F. Budd*

INVENTOR

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ATTORNEY

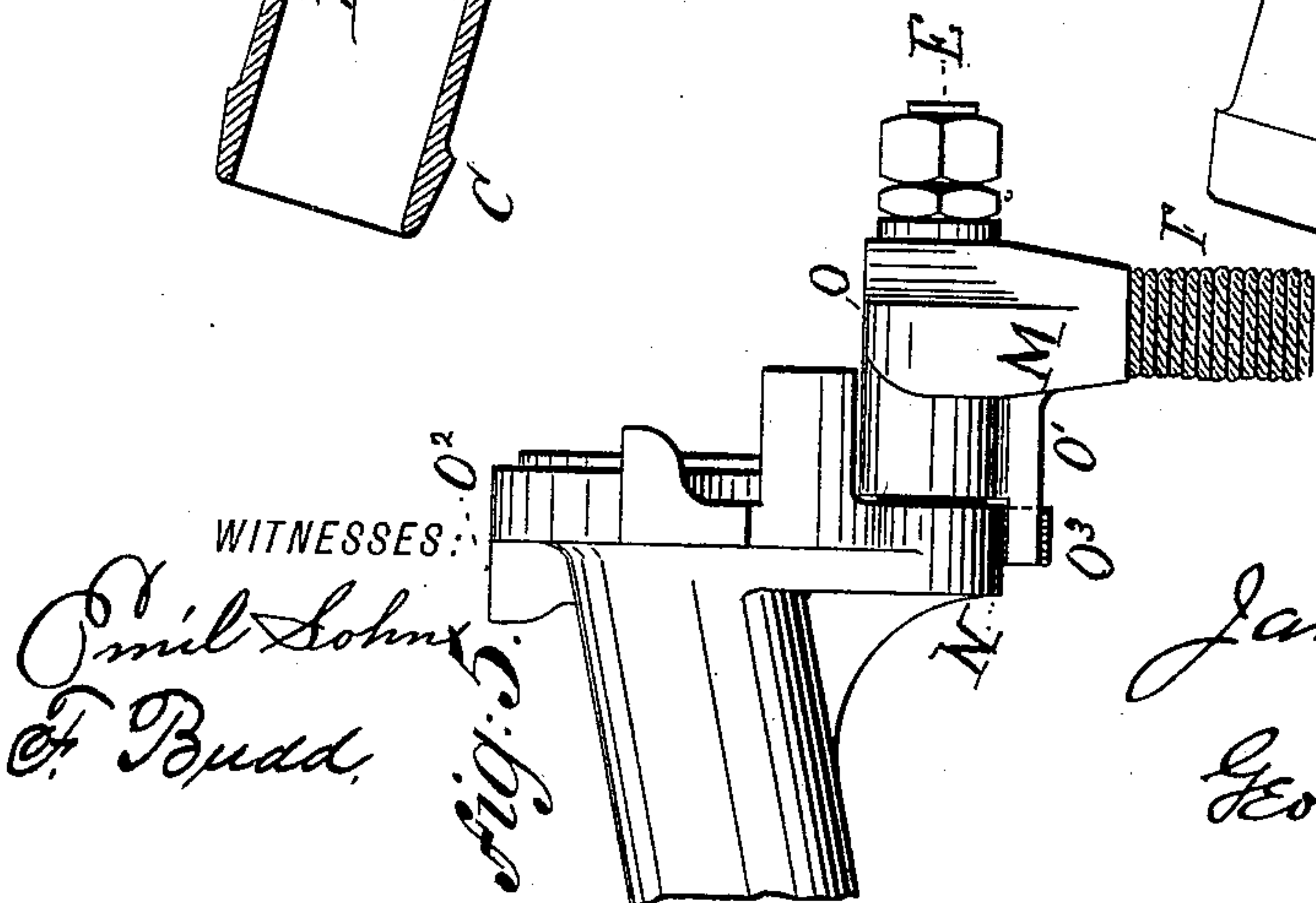
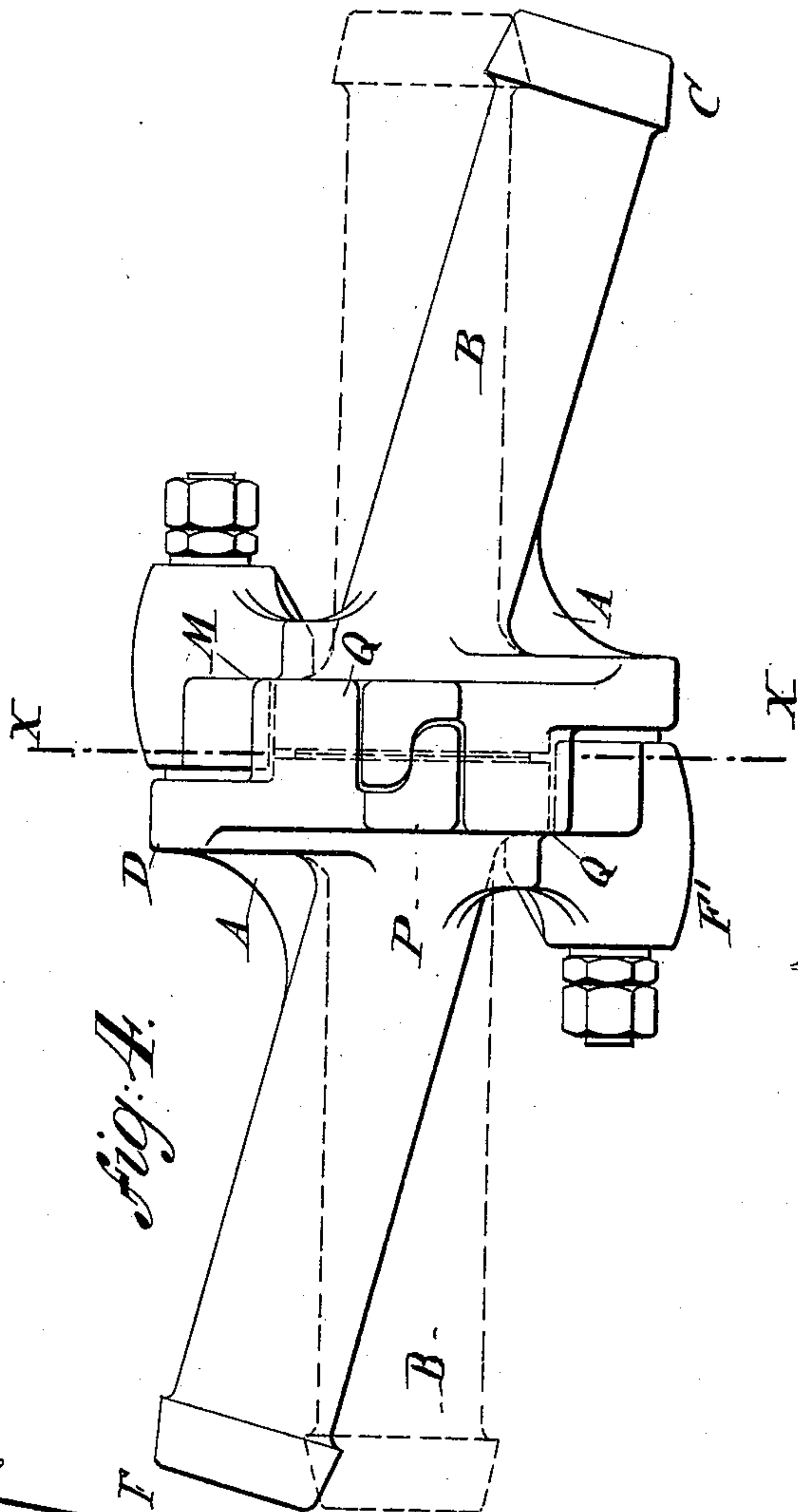
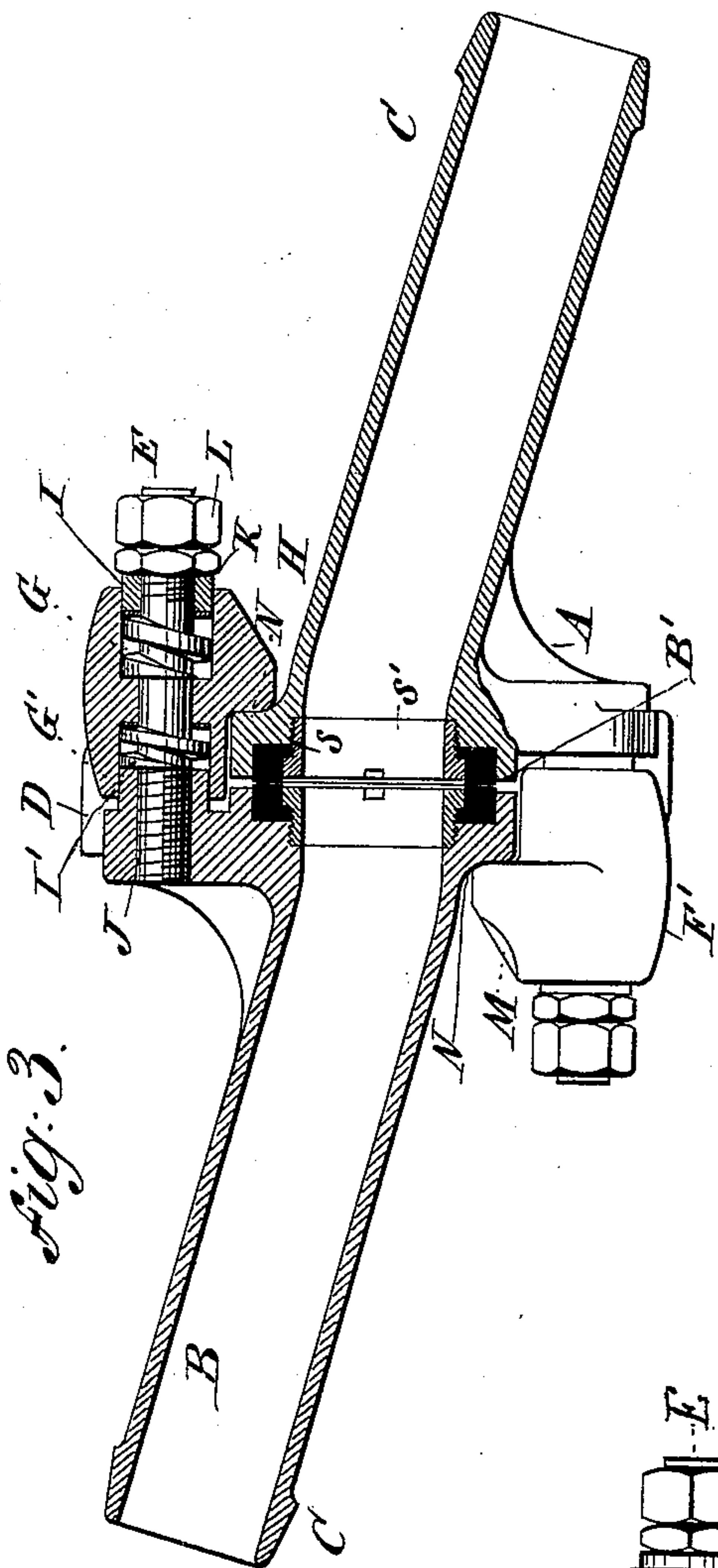
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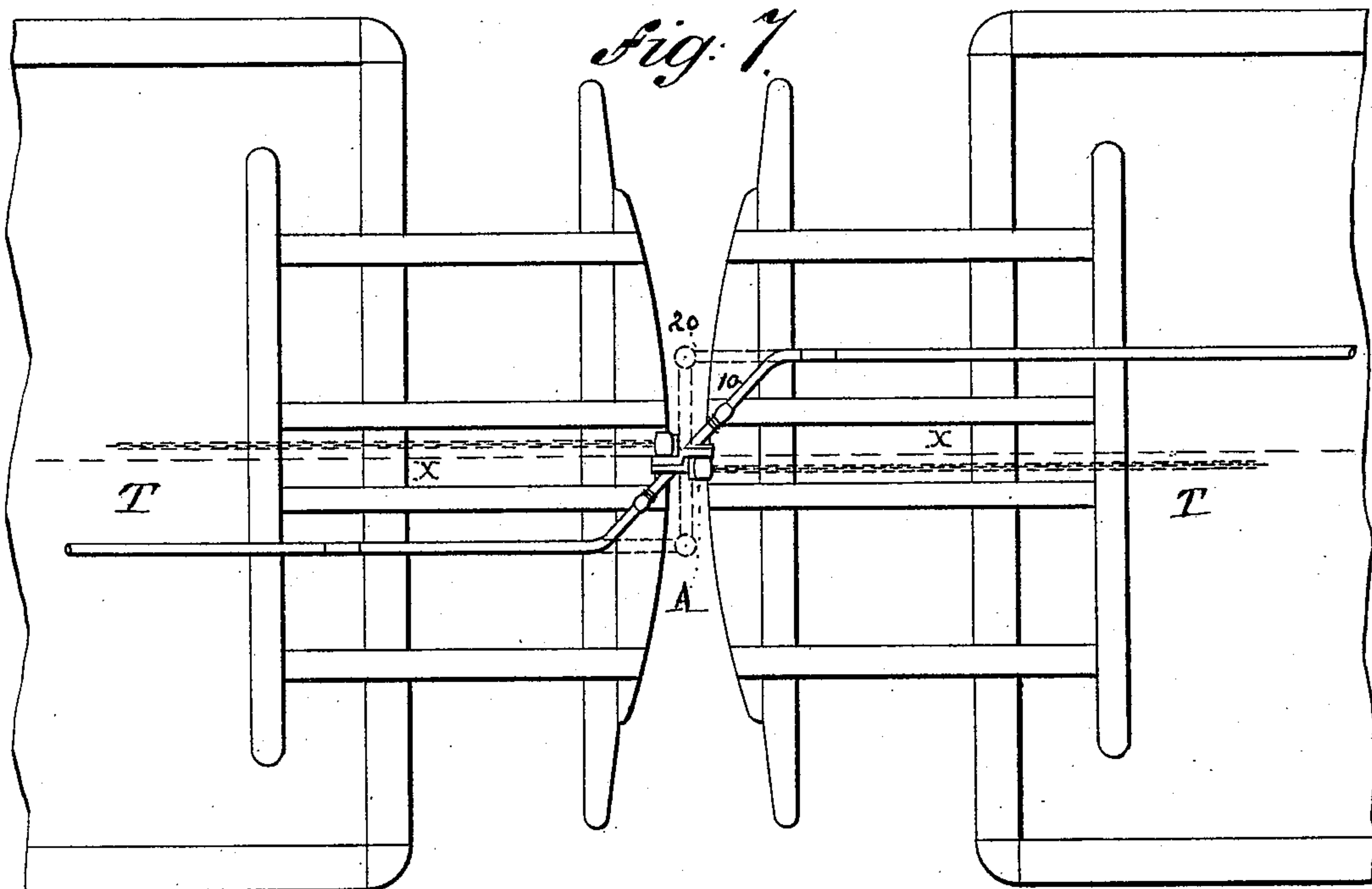
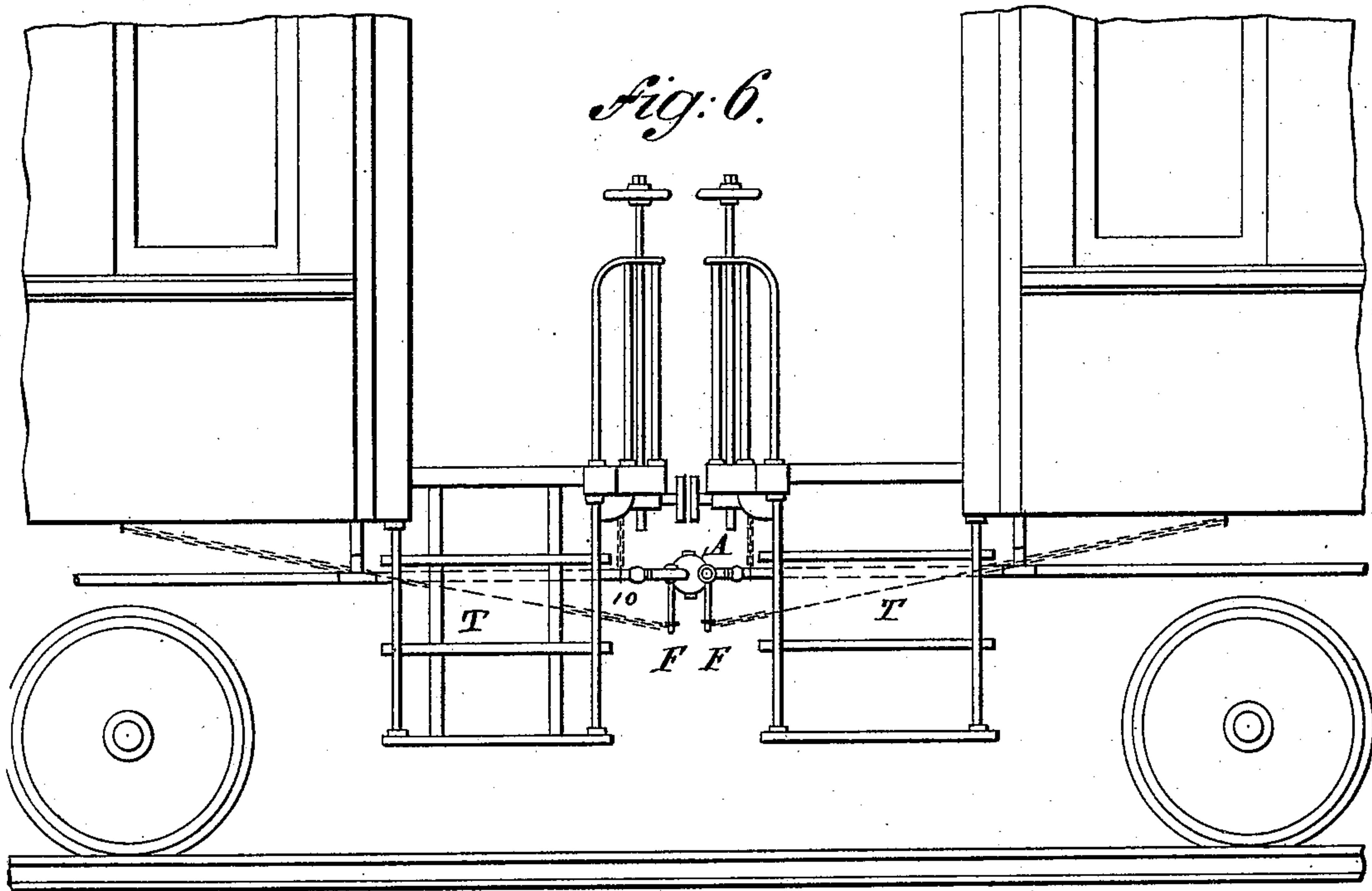
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3 Sheets—Sheet 3.

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# UNITED STATES PATENT OFFICE.

JAMES C. BAYLES, OF NEW YORK, N. Y., ASSIGNOR TO THE SAFETY CAR HEATING AND LIGHTING COMPANY, OF NEW JERSEY.

## PIPE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 400,822, dated April 2, 1889.

Application filed November 20, 1888. Serial No. 291,401. (No model.)

*To all whom it may concern:*

Be it known that I, JAMES C. BAYLES, a citizen of the United States, and a resident of the city, county, and State of New York, have  
5 invented certain new and useful Improvements in Pipe-Couplings, of which the following is a specification.

My invention relates to pipe-couplings of the class composed of two parts or half-couplings of identical construction.

The object of my invention is a pipe-coupling adapted to transmit fluids—such as steam or highly-heated water—and particularly  
15 such a coupling as is designed to be employed for connecting the heating apparatus of railway-cars.

My invention further relates to a pipe-coupling which is automatically separable upon the parting of the cars by accident or design  
20 and to the location and arrangement of such pipe-coupling in regard to the piping of the cars which it is designed to connect.

In the accompanying drawings, which illustrate my invention, similar letters of reference indicate like parts.

Figure 1 is a view in perspective of my improved coupling, showing the like parts or half-couplings united. Fig. 2 is an end view of a half-coupling with the locking-lever in the position it would occupy when two half-couplings are brought together prior to their being locked. Fig. 3 is a longitudinal section of the coupling, showing the port or passage through the coupling and the relation of  
35 the locking-levers to their adjusting-springs and to the portions of the coupling body with which they coact. The head or end of one lever is shown in section and the other in elevation. Fig. 4 is a side elevation of the coupling. Fig. 5 is a side elevation of a half-coupling and shows the cam or bearing face of the locking-lever. Fig. 6 is an elevation of the ends of two cars, and shows the position which it is designed the pipe-coupling shall occupy relative to the platforms and the piping of the cars. Fig. 7 is a plan of the bottom of two car-platforms, and shows the position of the pipe-coupling and its attachments relatively to the platforms and the cars.

50 As the coupling is composed of two half parts of identical construction, the letters herein-

after used will refer to the like parts of the half-couplings, although but a single half-coupling will be described.

A indicates the body portion of the half-coupling, and B a tubular shank projecting therefrom, provided with a nipple; C, on its end, by which the half-coupling may be connected to a flexible hose, 10, such as is commonly employed, or metallic pipe-connection  
60 20 or other suitable device, Fig. 7, for connecting it with the piping of the car to which the half-coupling is applied.

The coupling, as a whole, I propose to locate horizontally between the cars, and the  
65 tubular portion of the coupling, when a flexible hose is employed, I prefer to so arrange relatively to the body portion and the meeting faces B' of the coupling that the axis of the tubular portion will be angular to the  
70 plane of the meeting faces. I do this in order to provide a free and unbroken passage for the body transmitted through the coupling—a passage which shall be free from sag and without such bends or turns as are com-  
75 mon in pipe-couplings, or the hose-connections of pipe-couplings, of a corresponding class. By making the axis of the tubular portion angular to the plane of the meeting faces a horizontal and diagonal arrangement of the  
80 coupling and its hose-connections may be accomplished between the cars which it connects and a practically straight passage provided for the steam, water, or other body transmitted through the coupling. I wish it  
85 understood, however, that I do not limit myself to any definite angle between the axis of the tubular portion and the plane of the meeting faces of the coupling. Neither do I limit myself to the diagonal arrangement of the  
90 coupling and its hose between the cars. The tubular portion may be carried straight backward, so that its axis will lie in a plane at right angles to the plane of the meeting faces; but I prefer, as I have previously stated, to  
95 arrange the port or passage through the coupling in the manner described.

The coupling may be employed with a metallic pipe-connection (dotted lines, Fig. 7) so arranged as to compensate for the movement  
100 of the cars to which it is attached, and when so connected the port or passage through the



coupling may be angular or straight and the connection between the cars diagonal or straight, as desired.

Upon one side of the head of the half-coupling is the projection D, and extending forwardly from the projection D is a pin, E, which forms a bearing for the head of the locking-lever F. The locking-lever F is composed of two portions—the head F' and the handle F<sup>2</sup>. The head F' is provided with the cup-shaped depressions G and G' and the cylindrical opening for the passage of the bearing-pin E.

I and I' are helical springs arranged over the pin E and respectively located in the cup-shaped depressions G and G' of the head F'. The spring I finds a bearing for its ends upon the bottom of the depression G and against the follower K, which in turn bears upon the adjustable lock-nut L on the end of the pin E. The spring I' bears upon the boss J, which projects forwardly from the projection D and against the inner face of the depression G' in the head of the locking-lever F.

The inner side of the head of the lever F is provided with a projecting cam portion, M, which is adapted to ride over and bear, when the half-couplings are united, upon the bearing-flange N of the opposite half-coupling.

O and O', Fig. 5, represent shoulders on the front and back of the head of the lever F, and O<sup>2</sup> and O<sup>3</sup> corresponding shoulders upon the body of the half-coupling, O<sup>2</sup> projecting backwardly from the flange N and O<sup>3</sup> outwardly from the projection D. The shoulders O and O<sup>2</sup> serve to limit the movement of the locking-lever F inward in locking the coupling, and O' and O<sup>3</sup> the movement of the lever outward in unlocking the coupling. When two half-couplings are brought together, they will be guided to their proper locking position by means of the guide-flanges P, which project from the top and bottom of the half-coupling, and the flanges Q, which project from one side of the half-coupling. The precise configuration of these flanges is immaterial, and those shown in the drawings may be variously modified and yet serve a similar purpose.

The operation of uniting the half-couplings will be readily understood. When two half-couplings are brought together, they will be guided to their proper position by the flanges P and Q. When in this position, the locking-levers F are rotated inwardly toward the body of the coupler, the projections M on the heads of the locking-levers taking over the flanges on the half-coupling opposite to that to which its lever is connected, and thus tend to force the half-couplings together and to retain them in the coupled position.

The pressure exerted by the locking-lever F is regulated by the spring I, and the tension of this spring is adjustable by means of the lock-nut L acting upon the follower to compress the spring. The action of the spring I' is to force the head of the lever outward

against the follower and lock-nut, and thereby tends to prevent any rattling of the lever upon its bearing, and, further, serves to maintain the lever in any position in which it may be placed when the half-couplings are not united.

The spring I is not called into action until the cam-face M, which is slightly rounded at its end, commences to move over the flange N of the opposite half-coupling. As the cam-face M moves over the flange N, the spring I is compressed and its resilient action increased until the lever comes to rest by the stop O striking the stop O<sup>2</sup> projecting from the flange N.

I wish it understood that I do not limit myself to the use of two springs when located as described. I may use but a single spring, and I may change the means by which the adjustment of the spring is accomplished.

I preferably use two springs—one weak and the other strong—acting in opposite directions, in order to accomplish the object stated.

The device may work without any springs, the lock-nut being screwed down to such a point as will allow only the required play between the head of the locking-lever and the flange, and which will coincide with the compression of the gasket employed in the half-coupling.

It will be observed that the pressure with which the half-couplings are forced together will depend entirely upon the tension of the springs under the heads of the locking-levers, and that this tension may be regulated and adjusted to suit any degree of pressure which it is desired may be applied and to compensate for the wearing or hardening of the gaskets, and, further, that by reason of this arrangement the coupling cannot be injured by the application of too great a degree of force exerted by the person uniting the half-couplings in forcing the locking-levers to the coupling position.

One of the most important features of my invention relates to the arrangement of the coupling and its connections between the cars. In Fig. 6 the coupling is shown arranged horizontally beneath the platforms and straight across the intervening space between the cars, and in Fig. 7 horizontally and diagonally beneath and across the platform.

By reason of the arrangements illustrated I am enabled, as hereinbefore stated, to provide a passage or duct for the heating medium across the space intervening between the cars, which is free from turns, bends, or a sag in the coupling or its connecting-pipes, and, furthermore, am enabled to bring the levers F into the best possible position to be acted upon by the chains T to disconnect the coupling when the cars which it connects are separated by accident or design.

The line X X, Fig. 4, is the line of the meeting faces of the coupler, and is supposed



to lie, when the coupler is in its proper position, in the median line or long axis of the cars which the coupler connects.

When the coupling is located as described, the locking-levers have a movement in planes parallel to this axis, and are thus subjected to a straight pull when the connecting-chains T, which are connected to the ends of the levers and the body of the cars at or about its median line, are called into action.

In all other couplings of a corresponding class of which I am aware, and provided with levers adapted to be acted upon by chains or similar devices, the locking-levers have never been so located as to be capable of being subjected to a straight pull in order to rotate them to separate the couplings. Their action, further, is very uncertain, and the couplings, as well as the levers, are liable to be broken or otherwise damaged when called into action for any reason.

I wish it understood that I do not limit myself to the precise construction of the coupling device herein described, as it will be evident to any one skilled in the art to which this invention belongs that many changes may be made therein which will modify the action of the device, but which will in no wise depart from the intent of my invention.

I claim as my invention—

1. A pipe-coupling composed of two like parts having vertical meeting faces and provided with a port or passage the axis of which is horizontally angular to the plane of said faces, each part provided with a locking-lever adapted to engage with a flange on the opposite part, said levers adapted to move in planes parallel to the meeting faces of said coupler.

2. A pipe-coupling composed of two like parts, a locking-lever on each part adapted to engage with a flange on the part opposite to that to which it is attached, said levers moving in planes parallel to the meeting faces of the coupler, and an adjustable spring on each part adapted to bear upon the outer side of the head of the lever and to force said lever toward the body of the coupling to which it is attached.

3. A pipe-coupling composed of two like parts, a locking-lever on each of said parts, two springs in the head of each of said locking-levers adapted to exercise their pressure in opposite directions, and means for regulat-

ing the tension of one of said springs in each part.

4. A pipe-coupling composed of two like parts, and each part provided with a locking-lever having a plane of movement parallel to the meeting faces of said coupler and adapted to engage a flange on the part opposite to that to which it is attached, a spring so located on each part as to bear upon the outer side of the head of the lever, and a device for adjusting the pressure of said spring, whereby said lever may be adjusted to exert a locking-pressure independent of the force exerted in making the coupling.

5. The combination, with two railway-cars, of a pipe-coupling and its connecting hose or pipes arranged horizontally between said cars, the plane of the meeting faces of said coupling being vertical and in the median line of said cars, and the axis of the port or passage through said coupling and its connecting-hose horizontally angular to the plane of the said meeting faces and substantially straight and diagonally across the space intervening between said cars.

6. The combination, with the heating system of two railway-cars, of a pipe-coupling composed of two parts of identical construction, the meeting faces of which are in the median line of said cars, and provided with locking-levers located in planes parallel to said meeting faces.

7. A pipe-coupling composed of two like parts, a locking-lever on each part, a spring bearing upon the outer side of the head of each of said locking-levers, said locking-levers pivoted in a transverse line to the plane of the meeting faces of said cars, and each lever provided with a projecting cam portion adapted to engage a flange on the part opposite to that to which it is attached.

8. A pipe-coupling composed of two like parts, a locking-lever on each part, said locking-lever being pivoted in a transverse line to the plane of the meeting faces of the parts, and each provided with a projecting cam portion adapted to engage a flange on the part opposite to that to which it is attached.

In witness whereof I have hereunto set my hand this 8th day of November, 1888.

JAMES C. BAYLES.

Witnesses:

GEO. C. HALLETT,  
ROBERT M. DIXON.