

(No Model.)

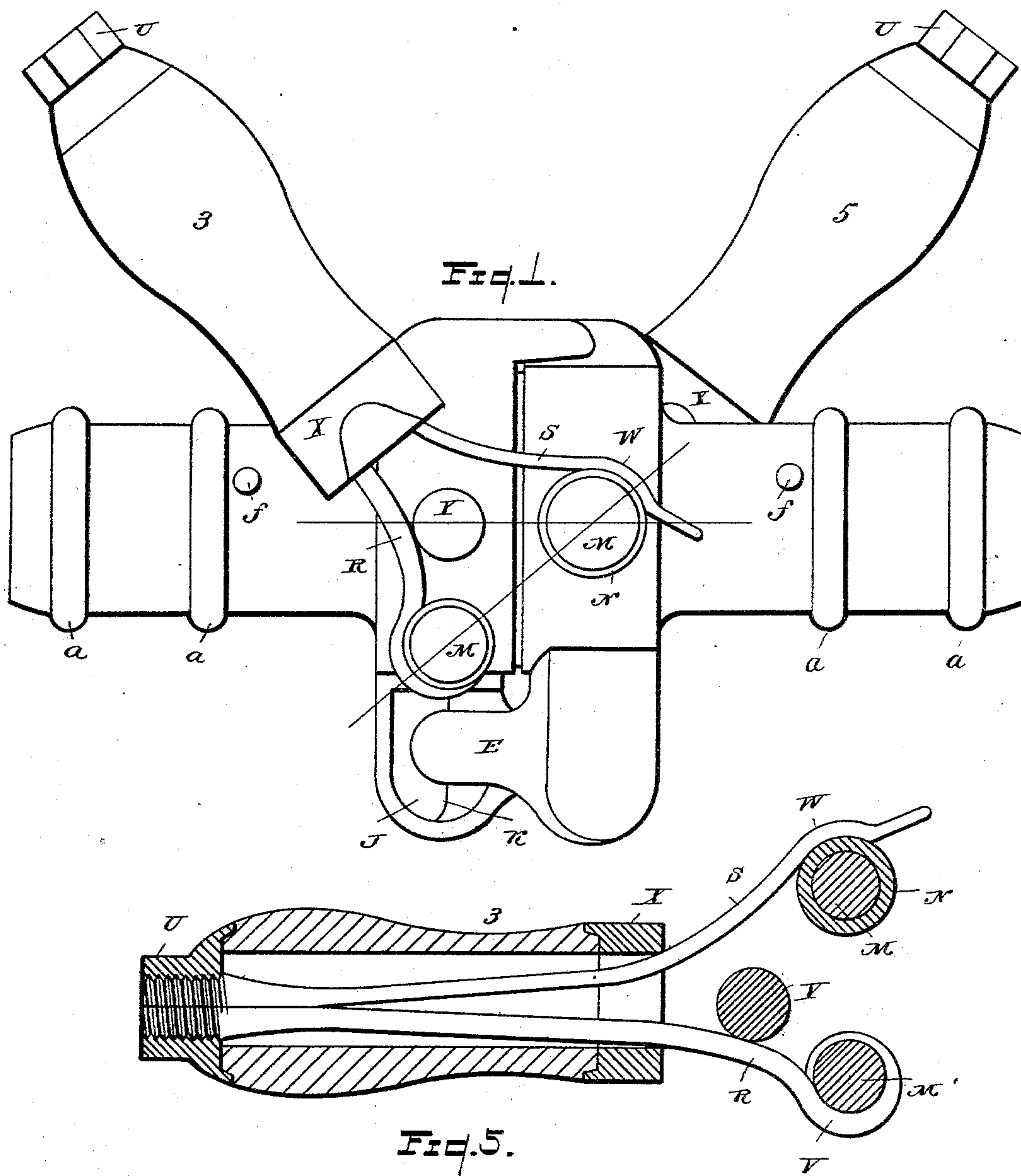
3 Sheets—Sheet 1.

C. F. MURDOCK.

PIPE COUPLER.

No. 412,198.

Patented Oct. 1, 1889.



WITNESSES  
*W. S. Shugette*  
*James J. Shiehy*

INVENTOR  
*Charles F. Murdock*  
*by Jno. B. Corlies*  
Attorney.

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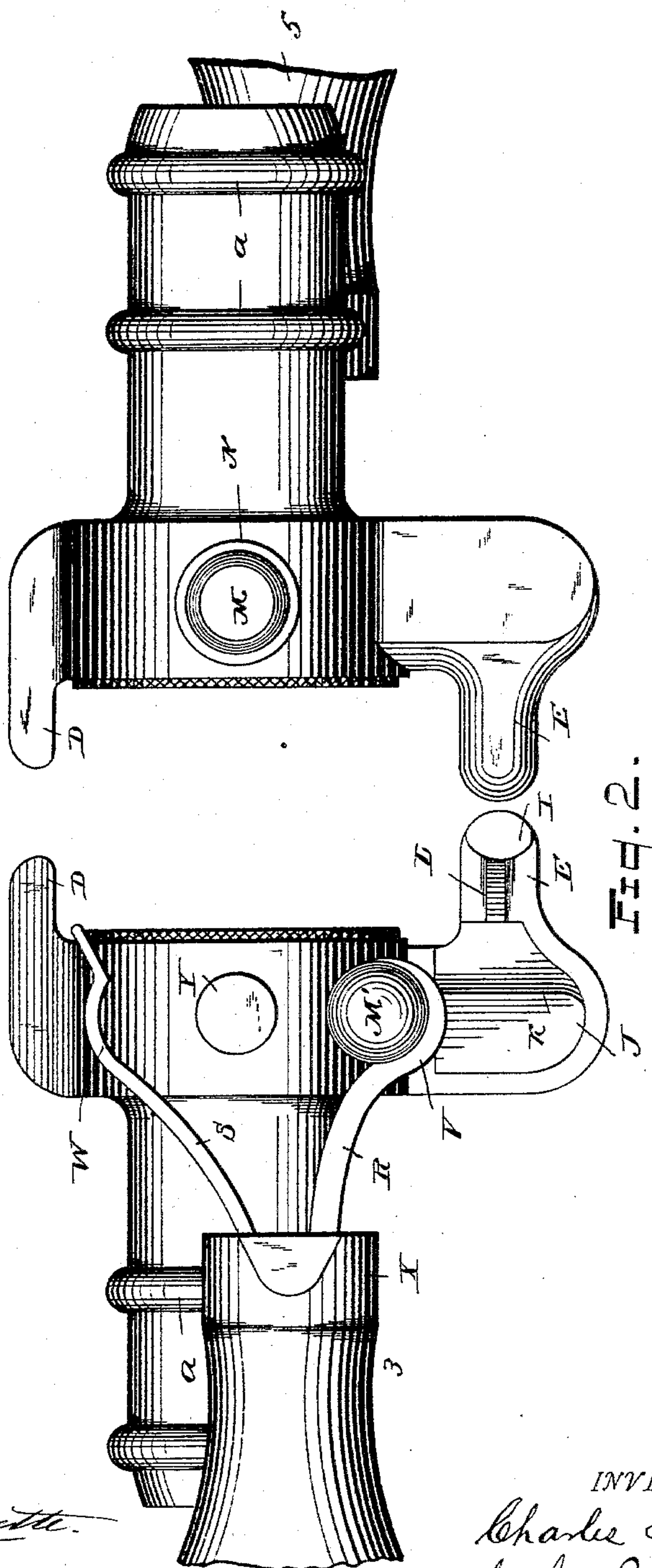
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 James Shiehy.

INVENTOR  
Charles F. Murdock  
by Jno. B. Loris  
Attorney.

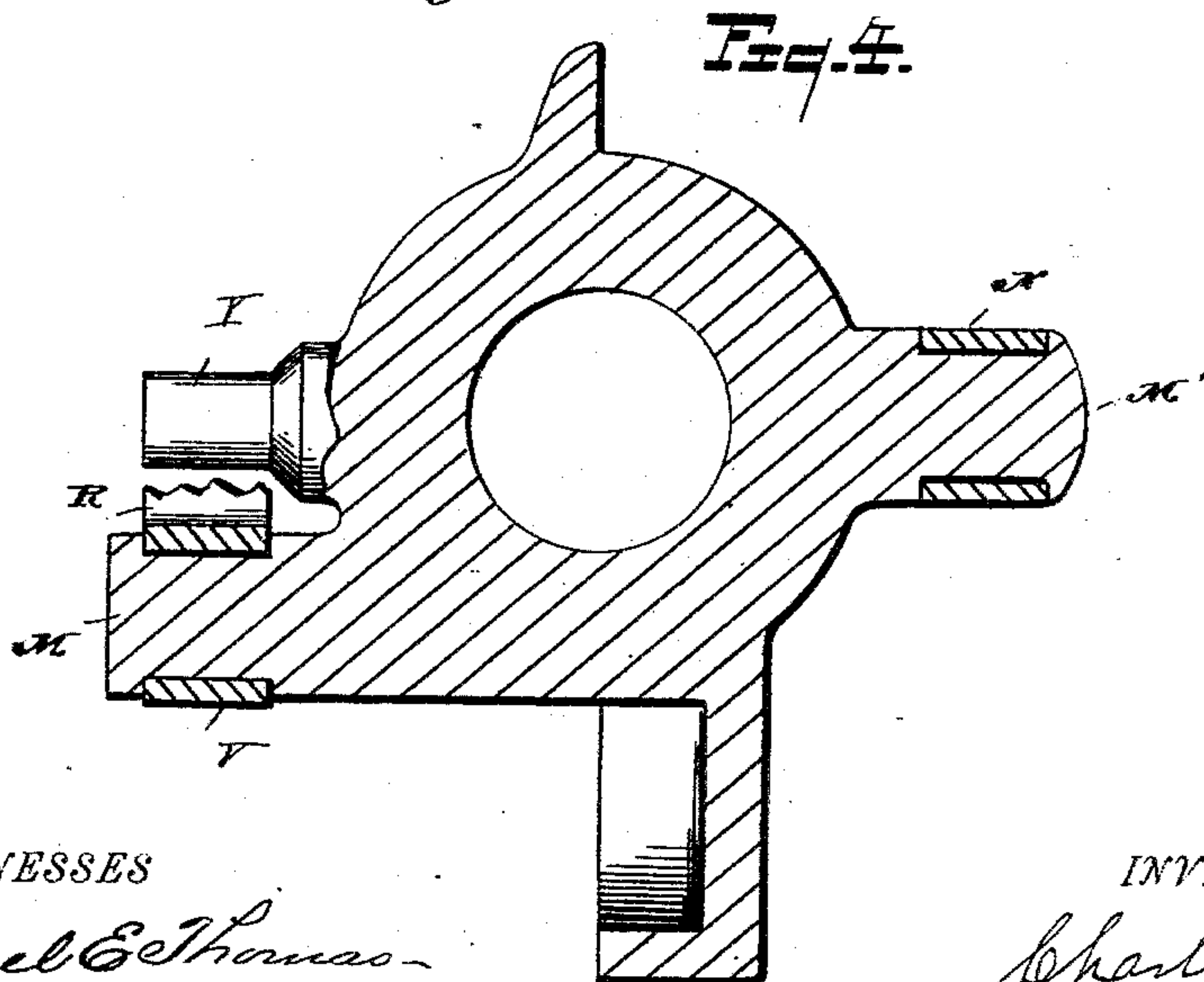
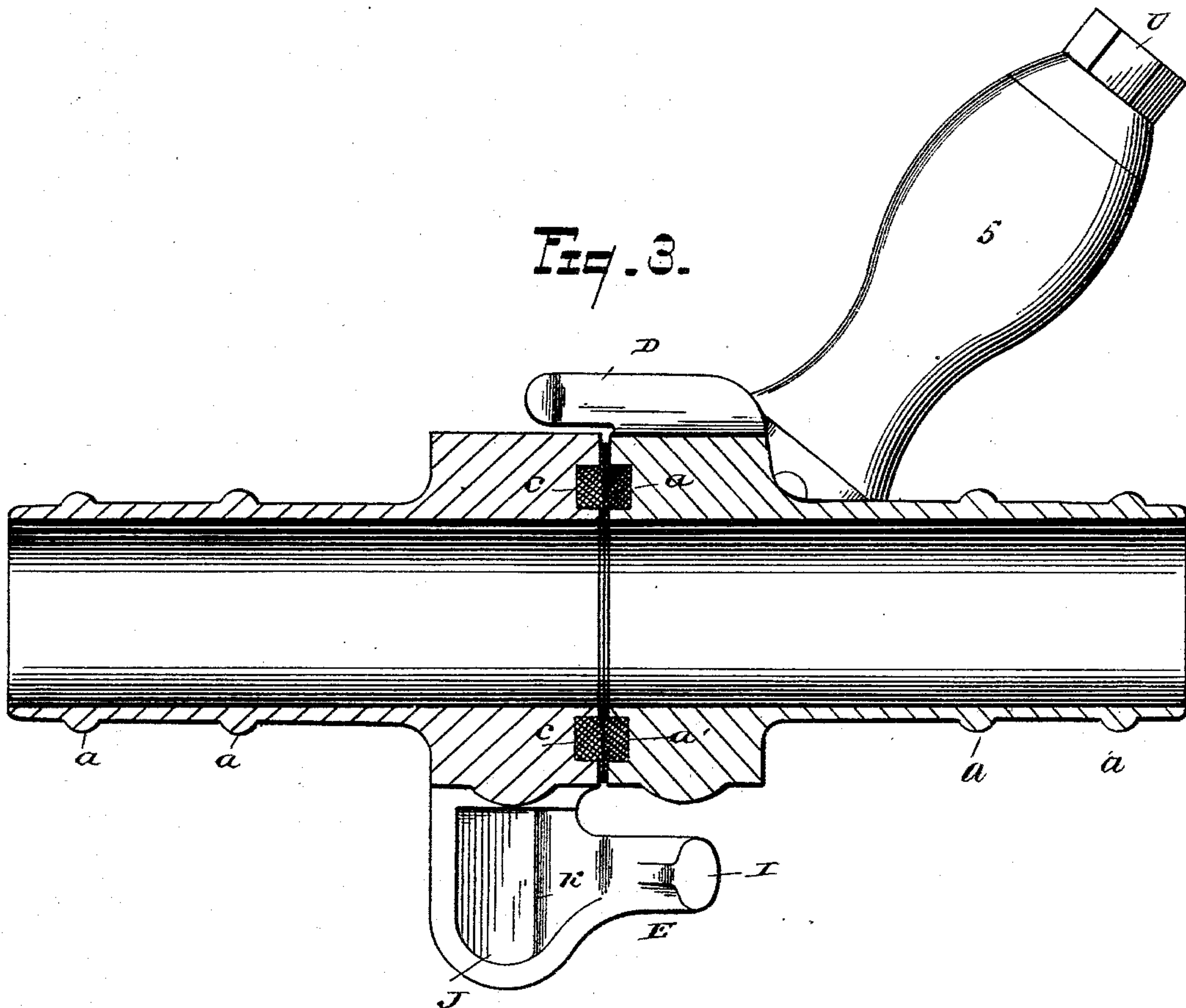
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PIPE COUPLER.

No. 412,198.

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WITNESSES

Samuel E. Thomas  
James J. Shuey.

INVENTOR

Charles F. Murdock  
by J. B. Clousie  
Attorney.



# UNITED STATES PATENT OFFICE.

CHARLES F. MURDOCK, OF DETROIT, MICHIGAN, ASSIGNOR TO THE AUTOMATIC CAR COUPLER HEATING COMPANY, OF SAME PLACE.

## PIPE-COUPLER.

SPECIFICATION forming part of Letters Patent No. 412,198, dated October 1, 1889.

Application filed May 1, 1889. Serial No. 309,301. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES F. MURDOCK, a citizen of the United States, and a resident of Detroit, in the county of Wayne and State of Michigan, have invented new and useful Improvements in Couplers; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to couplers especially designed for connecting pipes or hose between railway-cars for steam, water, or air; and it consists in the novel construction and arrangement of devices hereinafter specified and claimed.

In the drawings accompanying this specification, Figure 1 represents a side view of my coupler on duty. Fig. 2 is a representation of a side view with the parts detached and the handle broken away. Fig. 3 is a longitudinal section of coupler on duty. Fig. 4 is a detail showing in section recesses for coupling arms or hooks, and Fig. 5 is a sectional view of a handle inclosing operating-levers in position upon the trunnions and stops.

My coupler is formed in two sections, preferably of malleable iron, and with suitable ribs, as shown at *a*, for holding hose, when desired. On the top of each section I form a lug, (marked *D*,) to aid the projecting arm *E* in guiding the sections together for coupling and holding them in position. On the bottom is shown the face side of the projecting arm *E*, above mentioned, arranged slightly at one side of the body. At the outer side of this arm, and projecting at right angles from its face, I form a cylindrical extension, (marked *I*,) and its inner end is recessed, as shown at *J*, to receive the extension *I* on the corresponding arm and give it longitudinal play sufficient to admit of wear and permit the two parts of the coupler to come freely and squarely together. The outer end of the recess is beveled from the back toward the end, as shown at *K*. On the inner side of extension *I* is a rib *L*, extending from its outer end

to the face of the arm and along the same until its outer edge comes in line with the beveled side of the recess *J*.

Upon each side of the coupler are trunnions or journals *M*, and upon one of those trunnions is a friction-roller *N*.

Each section of the coupler is provided with a recess (marked *a'*) of sufficient size to admit and firmly hold a rubber ring, (marked *c*.)

Figs. 3 and 5 represent operating-handles. On the inside of each of these handles are flexible metallic levers, (marked, respectively, *R* and *S*,) the upper ends of which are threaded to receive a nut *U*. Immediately below the threaded portions they are curved outward, and the lower end of the lever *R* is eye-shaped, as shown at *V*, to clasp and work freely upon a trunnion *M*. The lower end of lever *S* has a circular depression, (marked *W*,) to fit over and work upon a friction-roller arranged around or over a trunnion *M*, as shown at *N* on the drawings.

I usually arrange a ferrule or band (marked *X*) on the lower part of my handle around the levers *R* and *S*; but I sometimes prefer to form handles of one piece of metal and dispense with said band. The entire handle may also be formed of one solid piece with spring-arm projections, and thereby dispense with the ferrule-nut and screw-threads.

Each section of my coupler is a duplicate of the other, to the end that one half of any coupler will couple with any other half of the same size. I have marked these sections 6 and 7, respectively.

The letter *Y* represents a stud or stop arranged on the face of the coupler, the functions of which will hereinafter be fully shown.

In operation it will be seen, if the handle is moved back toward the handle 3, that the lever *R* will rotate upon the trunnion *M*, which will become the fulcrum to force the lever *S* outward and upward until the friction-roller has passed out of the depression *W*, and from that point the flexibility of the lever will throw the handle back until it comes in contact with the hose and lies nearly parallel with the body of the coupler, and thereby uncoupling is effected. When coupling is desired, if part 7 be taken in the right hand, with the part 6 in the left, and



their faces brought nearly together and slightly elevated, so as to allow the arms E to interlock with each other and at the same time bring the lugs D into proper position, so  
 5 that the two parts of the body will be in line and then dropped, the weight of all of the parts will act upon arms E and bring their faces squarely together and then hold them in position as if coupled up, leaving the hands free  
 10 to operate the handles, and although the arms are so constructed as to do this, if the parts are sufficiently drawn upon by the hose, they are sure to be completely separated, as above stated.

15 It will be observed that when the sections of my coupling are united the trunnions M and M' are arranged on an angle of about forty-five degrees with each other, and that the stop-pin Y is on a line substantially parallel with M' and directly above M. The three  
 20 bearings therefore form a triangle having its base in either two of said bearings. By this arrangement a longitudinal draft on the pipe or hose serves to release the spring-lever S  
 25 from its bearing M' and automatically disunite the sections. This draft is given by a car to which the pipe or hose is attached when said car becomes uncoupled from its fellow either by design or accident, and it is never  
 30 sufficient to injure either the pipe or coupling. The pressure employed in pipes or hose for car-heating is from five to forty pounds per square inch. It follows that the flexible force exerted by the spring-arm S on its trun-  
 35 nion should be sufficient to resist said heating pressure and hold the meeting faces of the coupler tightly and securely together. I find by experiment that a force of from fifty to sixty pounds on the spring-arm of lever S  
 40 is sufficient for this purpose.

f indicates a stop-pin arranged on the outer end of each section of my coupler and preferably on a band, by which it is connected with a pipe or hose. The function of these  
 45 pins is to receive the handles at the time uncoupling occurs and prevent them from falling below a parallel line.

The coupling above described is partly shown in my application No. 299,387, filed February 11, 1889, and also in my application  
 50 No. 315,436, filed May 1, 1889.

Having described my invention, what I claim is—

1. The trunnions M and M', arranged in such manner that when on duty they shall  
 55 stand at an angle of about forty-five degrees with each other, in combination with levers R and S and stop-pin Y, the latter being so arranged with reference to the trunnions that the three shall form a triangle having its base  
 60 in either two of said bearings, substantially as specified.

2. The combination, with the coupling-heads carrying a lug or stud, of the locking-levers hinged or pivoted to said heads, the levers  
 65 each carrying a yielding branch adapted to engage a stud or trunnion on the opposite head, and each head also having a stop or lug arranged so as to limit the locking movement of said levers and hold them in a posi-  
 70 tion whereby they may be disconnected by longitudinal draft on the hose, substantially as specified.

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

CHARLES F. MURDOCK.

In presence of—

THOMAS T. LEETE, Jr.,  
 JOS. L. HARRINGTON.