

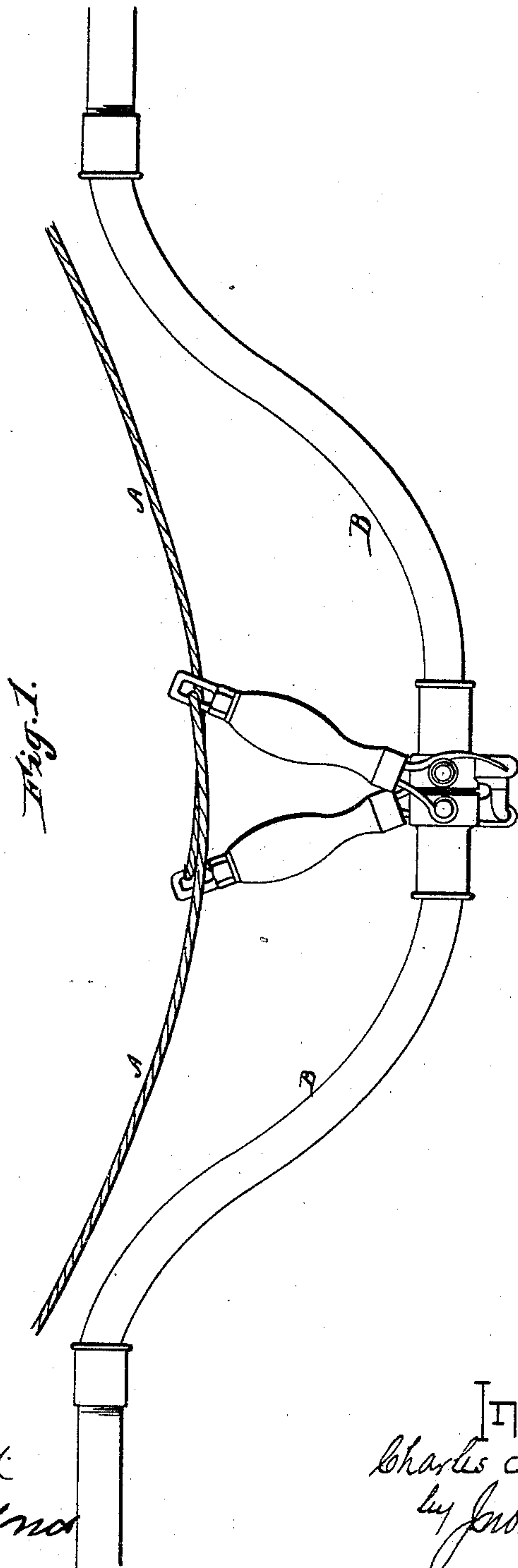
(No Model.)

2 Sheets—Sheet 1.

C. F. MURDOCK.
PIPE COUPLER.

No. 409,697.

Patented Aug. 27, 1889.



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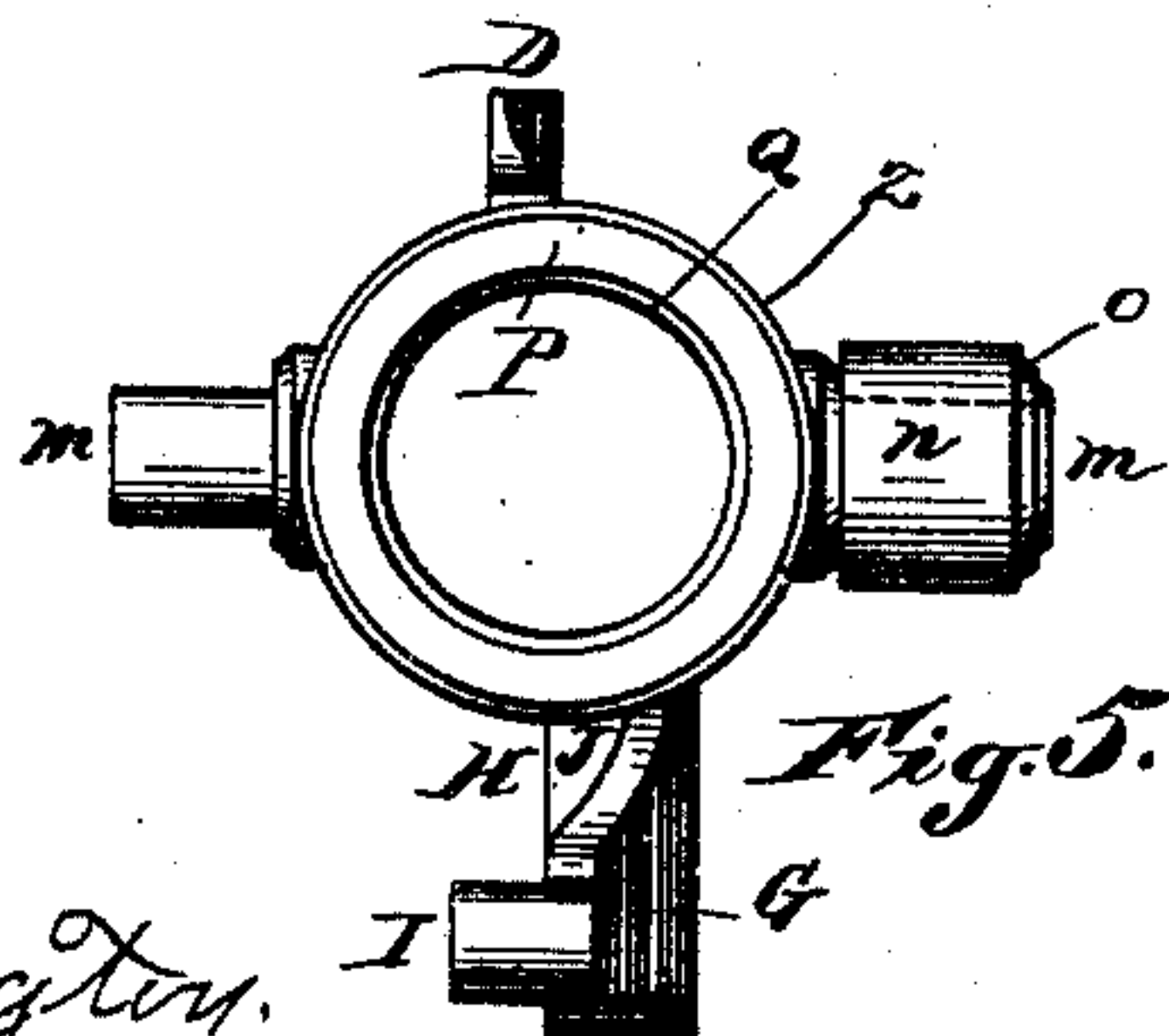
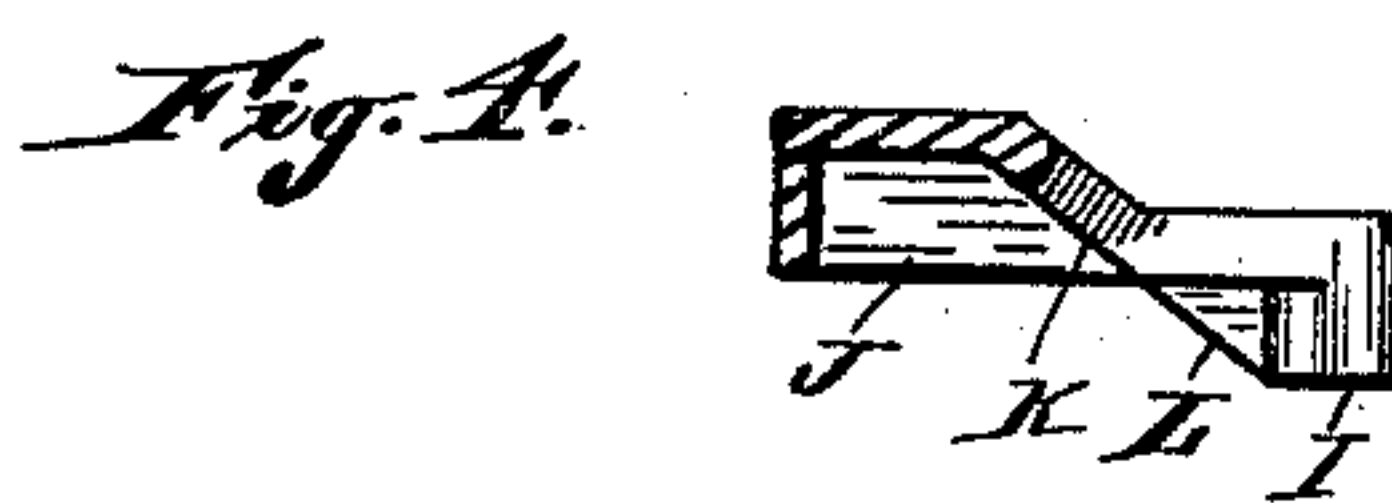
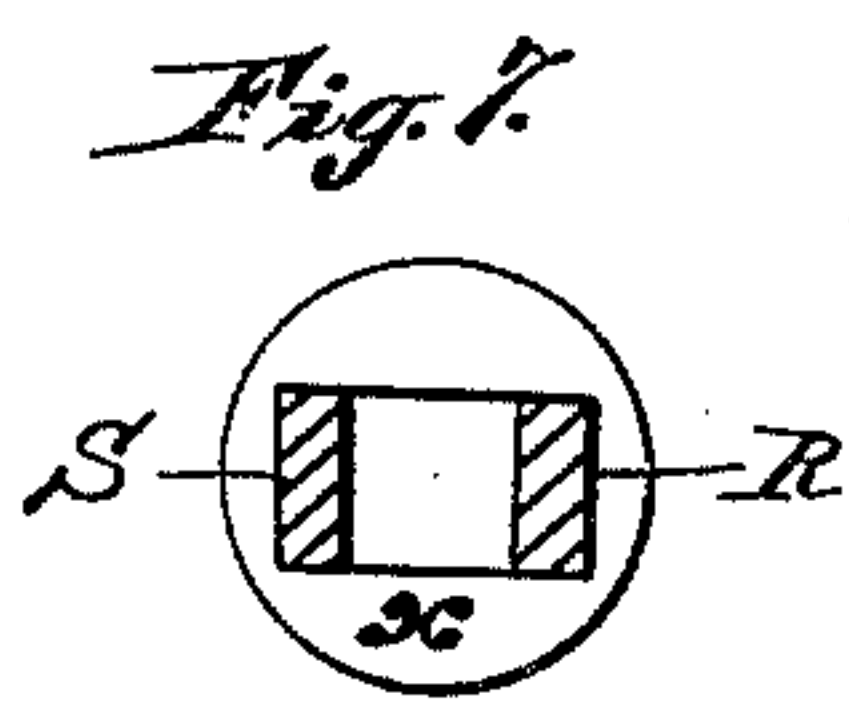
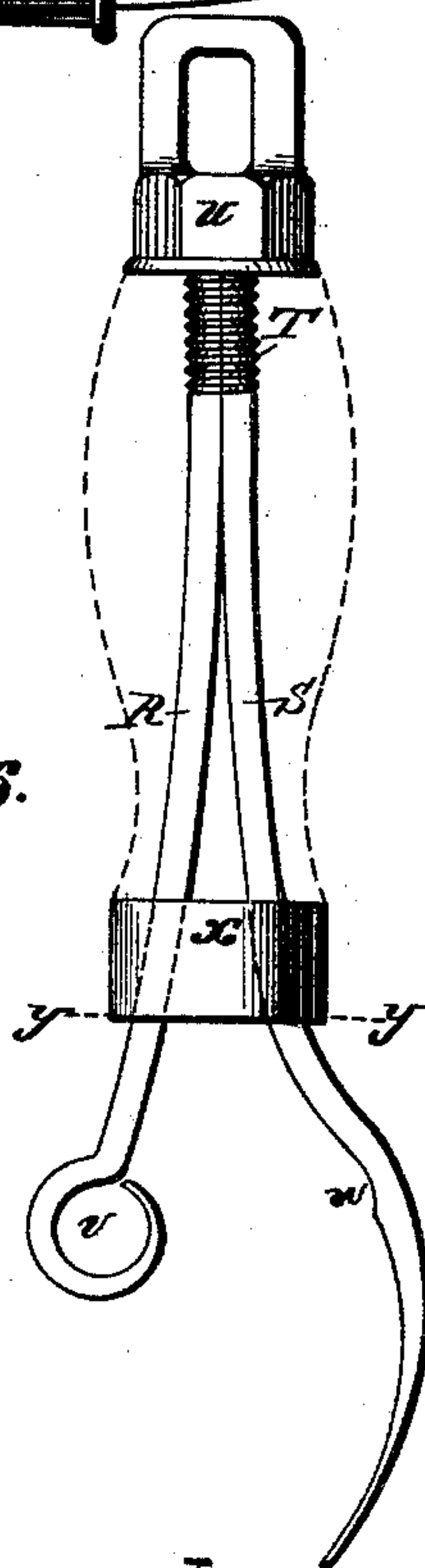
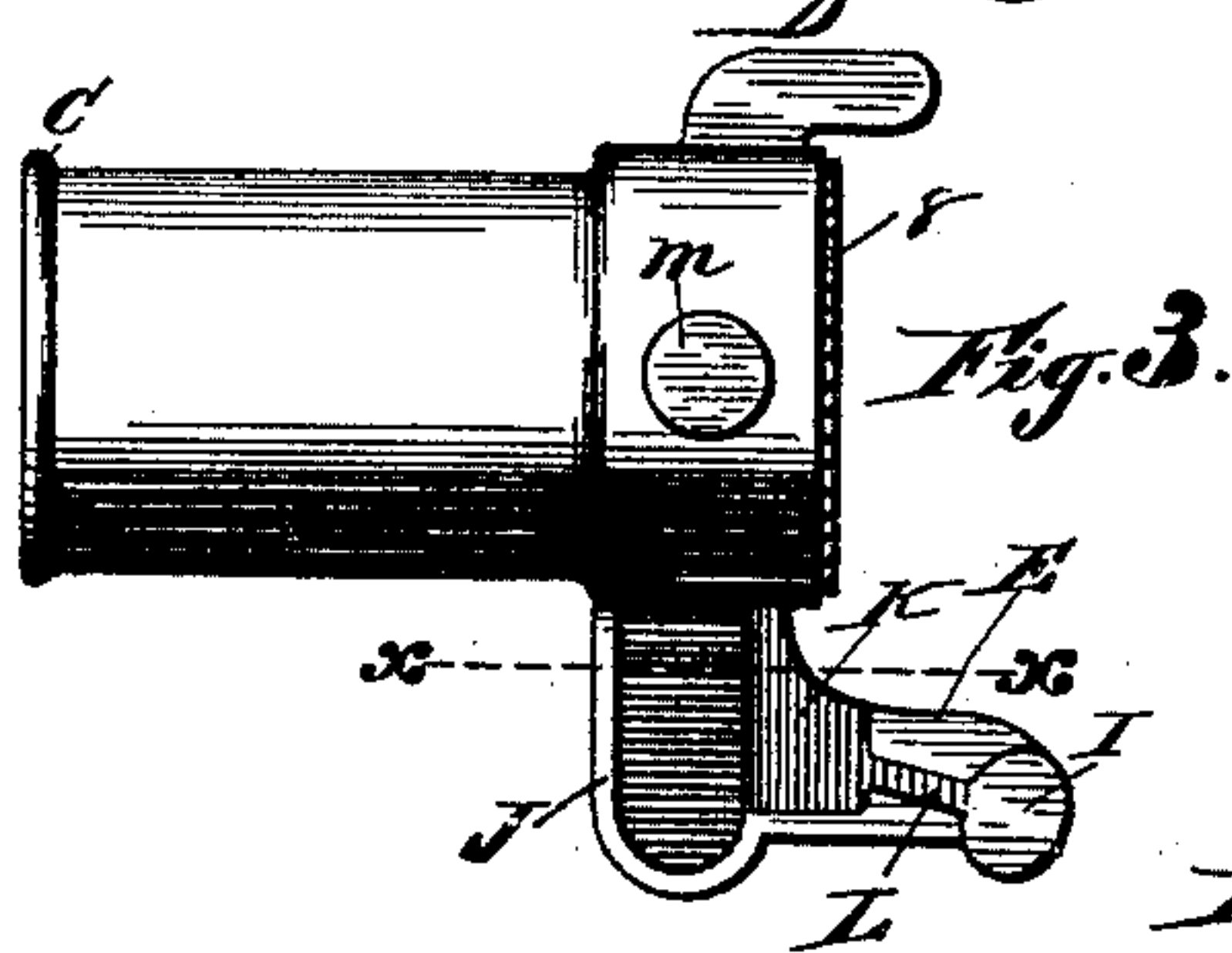
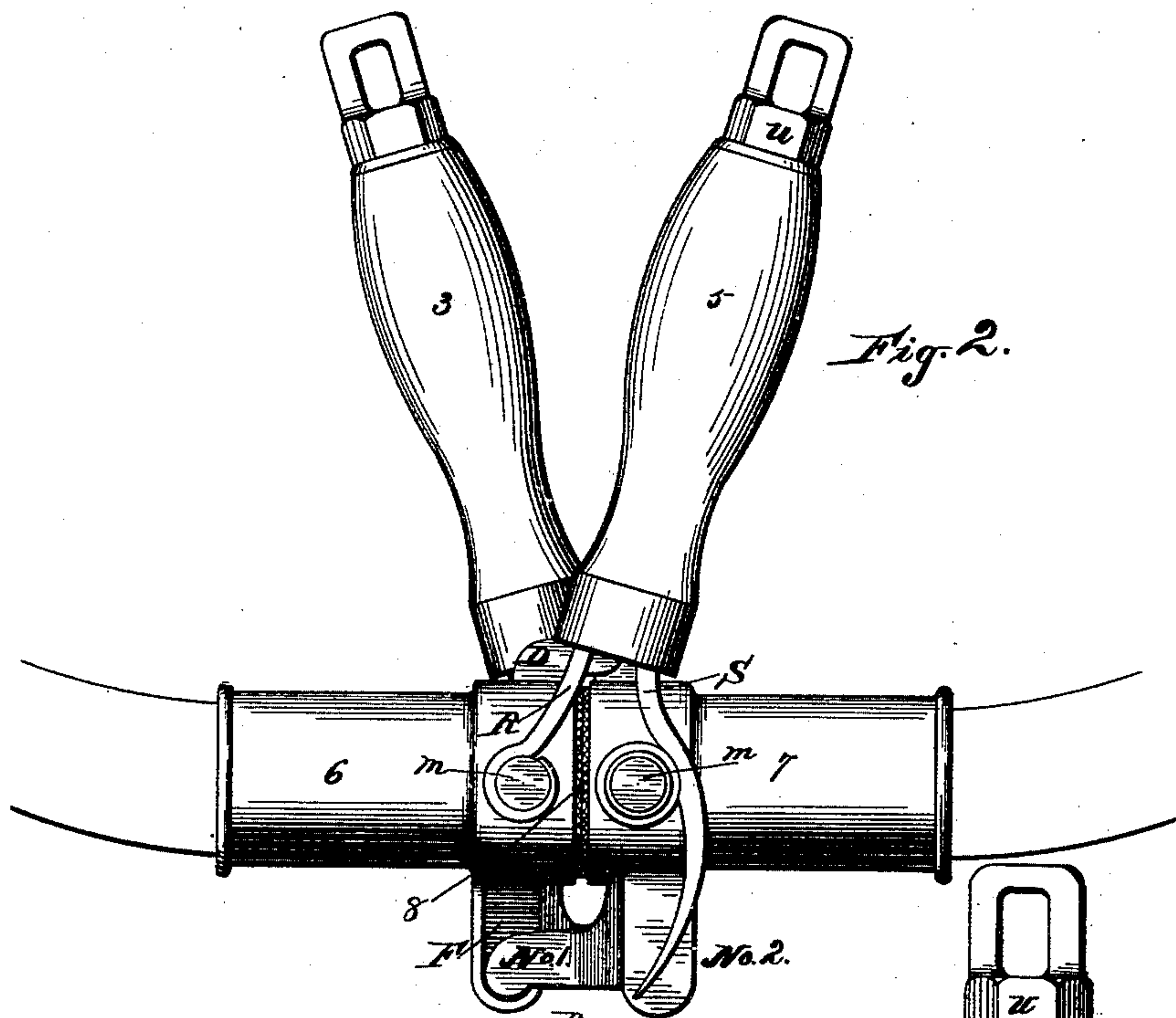
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2 Sheets—Sheet 2.

C. F. MURDOCK.
PIPE COUPLER.

No. 409,697.

Patented Aug. 27, 1889.



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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. 409,697, dated August 27, 1889.

Application filed February 11, 1889. Serial No. 299,387. (No model.)

To all whom it may concern:

Be it known that I, CHARLES F. MURDOCK, of Detroit, in the county of Wayne and State of Michigan, have invented new and useful
5 Improvements in Hand-Couplers; and I do hereby state that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this description.

10 The invention relates to hand-couplers especially designed for connecting pipes between railway-cars or other places for steam, water, or air.

The coupler herein described belongs to that
15 class which automatically uncouples, its peculiar features being in the mode of coupling and holding the two parts of the coupling together, as hereinafter more fully described, and pointed out in the claims.

20 Figure 1 is an elevated view showing the coupler in position on the hose as they are intended to be when on the cars in operation and coupled up. The ropes A A have their outer ends, which are not shown, attached to
25 the cars, and when the cars separate operate upon the handle by drawing their upper ends toward one another until they pass, and thus liberating the two parts of the coupler by the time the hose B B, to which it is attached,
30 straightens up. Fig. 2 is a side elevation of my hand-coupler. Fig. 3 is a side elevation of one-half of body with handles attached. Fig. 4 is a section of projecting arm E at X X, also showing top view of its outer end. Fig.
35 5 is an end view of Fig. 3. Fig. 6 is a side elevation of handle with wood part removed, so as to show internal construction. Fig. 7 is a section of Fig. 6 at Y Y.

Fig. 3 shows a side elevation of one-half of
40 coupler-body, which may be made of malleable iron or other suitable material with rib upon its back end, as shown at C, the same as ordinary hose-coupling, to prevent the hose from slipping off when fastened. On the top
45 is a lug D, as shown in Figs. 2, 3, and 5, so as to assist the projecting arm E in guiding the body parts together. On the bottom is shown the face side of projecting arm E. A part of the face side is also shown at F in Fig. 2, the
50 back view of which is shown at Nos. 1 and 2, Fig. 2, and also a view of the outer end at G in Fig. 5. The face side of projecting arm E

is slightly offset at one side of the center of the body, as shown at H in Fig. 5. At the
outer end of this arm E and projecting at
55 right angles from its face is a cylindrical extension I, as shown in Figs. 3, 4, and 5. The inner end is recessed back from its place, as shown at J in Figs. 3, 4, and 5, and sufficiently
60 large to receive the extension I on a corresponding arm and to give it longitudinal movement enough to admit of wear and the two parts of the coupler coming together
freely, square, and true. The outer end of the
65 recess is beveled from the back toward the end of the arm, as shown at K in Figs. 3 and 4. On the inner side of the extension I is rib
L, extending from its outer end to the face of the arm and along until its outer edge comes
70 in line with the beveled side of recess J. Upon each side are trunnions or journals, as shown at the letters M in Figs. 2, 3, and 5. Upon
one of these trunnions is a friction-roller N, as shown in Figs. 2 and 5, which may be made
75 of any suitable material—steel, iron, or brass—and held in position in any suitable way, preferably by a small collar and riveted on, as shown at O in Fig. 5. The inner end of body
part is also recessed, as shown at P in Fig. 5,
80 sufficiently deep to admit of and firmly hold a rubber ring between the inner and outer
circular projections, as shown at Q and Z in Fig. 5.

Fig. 6 represents the handles, or, more properly, a flexible lever, by which the body parts
85 of the coupler are forced and held together.

The two center pieces R and S, as shown in Figs. 6 and 7, are preferably made of flexible material, with their outer ends threaded, as at
90 T, to admit of adjustable nut U, as shown in Figs. 2 and 6. Immediately below the threaded part they are curved outward. The lever end of part R is made I shape, as shown at V, so
as to fit and work freely upon trunnion M, as shown in Fig. 2. The lower end of part S is
95 curved with a depression, as shown at W, to receive the friction-roller *n*. From this point to the end the curve is so formed that a radius from the center of the eye V is gradually
increased, as may be desired, to obtain the
100 required amount of pressure upon the trunnions by a given pressure of the hand upon the handle.

The ferrule or fulcrum band X, Fig. 6, may

be made of malleable iron or other suitable material, with an opening through its center, as shown in Fig. 7, of proper size to receive the two flexible levers R and S. The handles
 5 may be fastened to the body in the same manner as the friction-roller. The adjustable nut U may also be of malleable iron, with a suitable opening in the top, as shown in Figs. 6 and 2, to receive the uncoupling-ropes A A,
 10 as shown in Fig. 1.

The handles 3 and 5 are duplicates one of the other, each being made as herein set forth, and shown in Fig. 6. Each half of the body 6 and 7 is a duplicate one of the other, each
 15 being made as herein set forth, and shown in Figs. 3, 4, and 5, so that one half of any coupler will couple with any other half of the same kind.

The coupler-faces 6 and 7 (shown at 8 in Fig. 2 and also in Fig. 3 at 8) are made of rubber and of circular form and the required size to fit recess P, as shown in Fig. 5, and project far enough to prevent front ends of metal parts coming in contact with each
 25 other.

In operating, it will be seen that if the handle 5 is moved back toward the handle 3 the lever R will rotate upon the trunnion M, which will become the fulcrum to force the
 30 lever 3 outward and upward until the friction-roller is out of the depression W in lever S. Then the flexibility of the lever will throw the handle back until its largest part comes in contact with the hose and lies nearly parallel with the body of the coupler. As handle
 35 3 is a duplicate of 5, if moved in the opposite direction the operation and result will be the same, and thus the two parts of the coupler will be liberated. Now, if the two parts 6 and
 40 7 are drawn upon by the hose the extensions I or arm E will engage with the outer curve in the bottom of the recess F until the faces are drawn squarely apart and slightly upward, thus preventing wear upon the faces
 45 by one rubbing upon the other and at the same time throwing themselves out of the bottom of recess J and against the beveled side H and rib L, and are thus completely separated.

When coupling together, if part 7 is 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
 55 time bring the lugs D into proper position, so that the two parts of the body will be in line and are then dropped, the weight of all the parts will act upon arm E and bring the faces squarely together and then hold them
 60 in position as if coupled up, leaving the hands free to operate the handles, and although the arms are so constructed to do this if the parts are sufficiently drawn upon by the hose they are sure to be completely
 65 separated, as hereinbefore stated.

Having thus described the arms and their operations, it will be seen that their object is

to hold the two parts of the coupler together while coupling up and yet to automatically separate themselves when sufficiently drawn
 70 upon if the handles are thrown back.

The trunnions or journals M are preferably made as shown, but may be of other mechanical construction, the object being to have one upon one side of the coupler-body to
 75 hold the herein-described connection or its equivalent and one on the opposite side to receive a corresponding connection while coupling up. The receiving-trunnion is preferably provided with a friction-roller, as shown, but
 80 may be without it. The handle 5, as shown in Fig. 6, is also preferably made as shown and described, but may be otherwise, excepting the depression W and the curve therefrom
 85 to the lower end of the part S, which curve or plane must be so constructed as to draw and hold the two parts of the coupler together as it moves over the friction-roller or its equivalent.

Having thus described my invention, what I
 90 claim is—

1. The combination, with the tubular coupling-bodies, of the hook-shaped lugs D, the interlocking arms E, provided with extensions I, beveled surfaces and recesses, the
 95 trunnions on the sides of the coupling-bodies, the flexible bifurcated lever-handles provided with eyes, curved engaging-arms and eye-pieces adapted to receive a pull uncoupling-rope, substantially as specified. 100

2. The combination of two coupling-sections having on their under sides interlocking rigid lugs or arms and each having a laterally-disposed trunnion and levers journaled to said sections and having a yielding
 105 arm or branch adapted to engage the trunnion on the opposite coupling-section, substantially as specified.

3. The combination, with two coupling-sections, each having a rigid arm on its under
 110 side adapted to interlock when the adjacent ends of the sections have been brought together, of two locking and unlocking levers having a forked branch, one branch of each lever being respectively journaled on the
 115 sides of the coupling-sections and the opposite branch of each lever being adapted to engage a trunnion on the side of the opposite coupling-section, substantially as specified.

4. The combination, with two coupling-sections, each having a laterally-disposed trunnion, of a hinged coupling and uncoupling lever having a yielding branch adapted to engage the trunnion of the opposite section, the said levers having their outer ends adapted
 125 to receive a pull-cord, substantially as specified.

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

CHARLES F. MURDOCK.

Witnesses:

JNO. B. CORLISS,
 FRANK D. ANDRUS.