

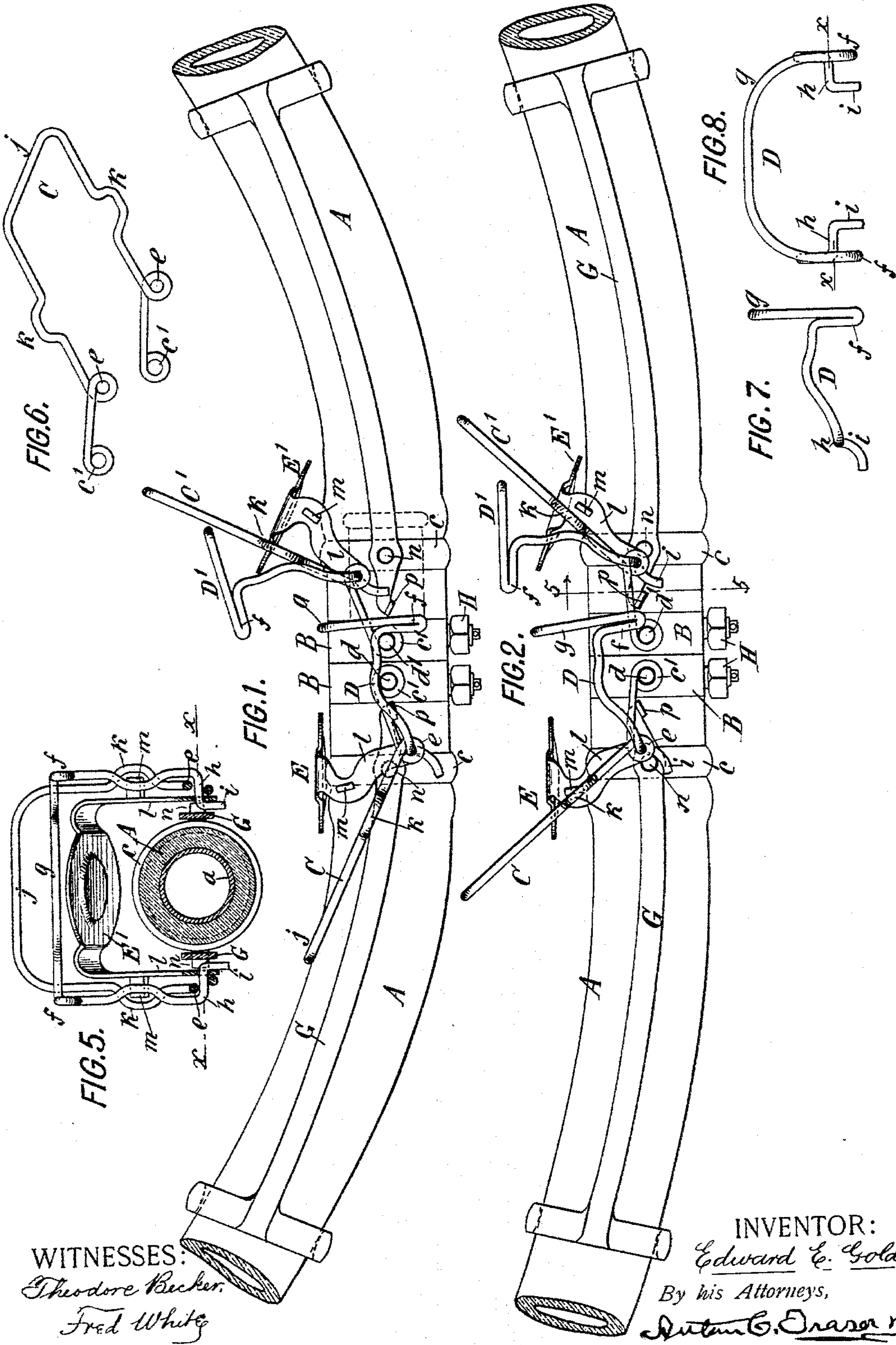
(No Model.)

3 Sheets—Sheet 1.

E. E. GOLD.
HOSE COUPLING.

No. 584,144.

Patented June 8, 1897.



WITNESSES:
Theodore Becker,
Fred White

INVENTOR:
Edward E. Gold,
By his Attorneys,
Arthur C. Draper & Co.

(No Model.)

3 Sheets—Sheet 2.

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FIG. 3.

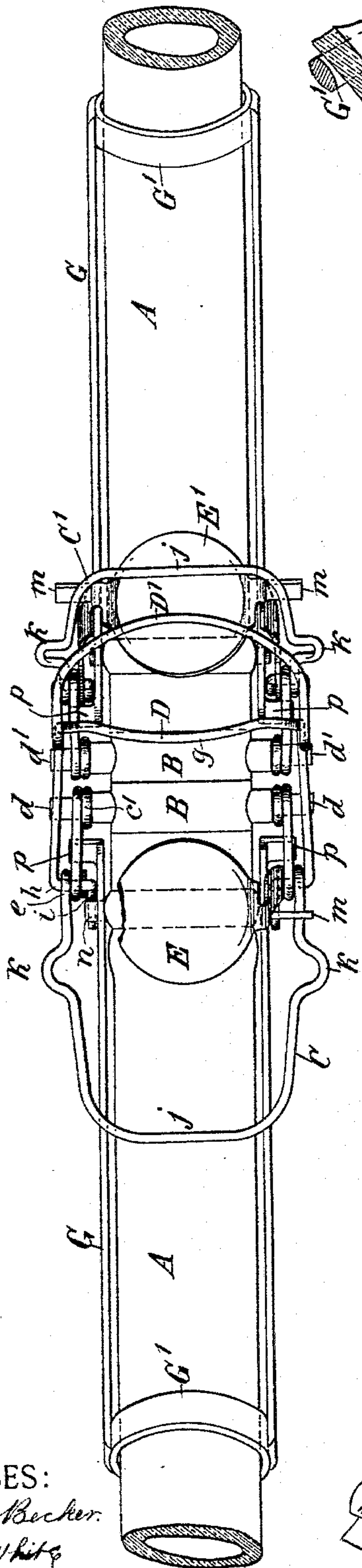
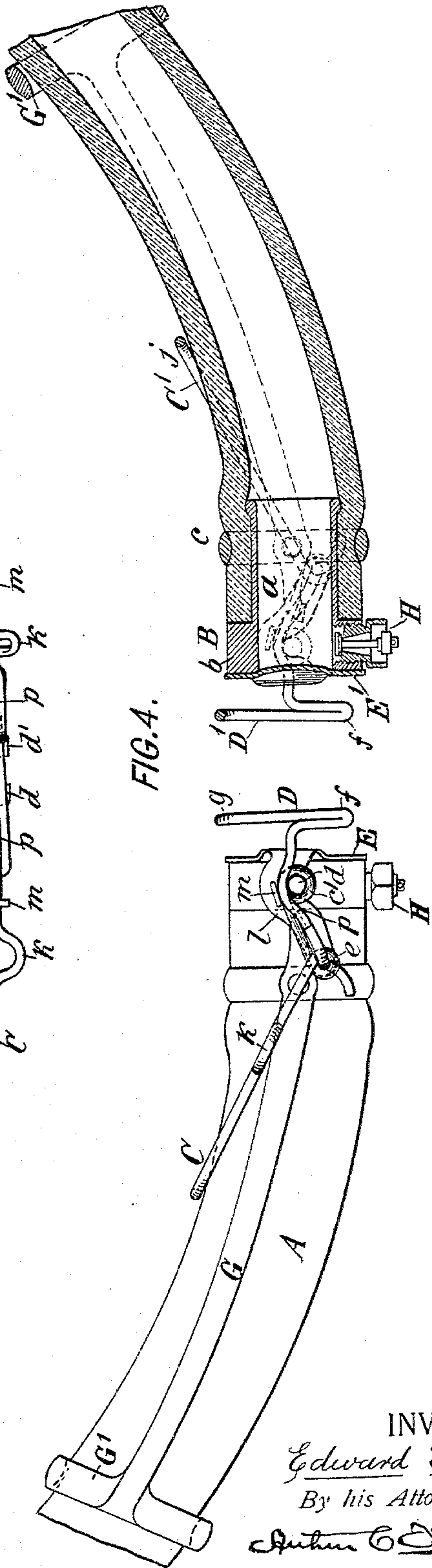


FIG. 4.



WITNESSES:
Theodore Becker.
Fred White.

INVENTOR:
Edward E. Gold,
By his Attorneys,
Arthur C. Eraser & Co.

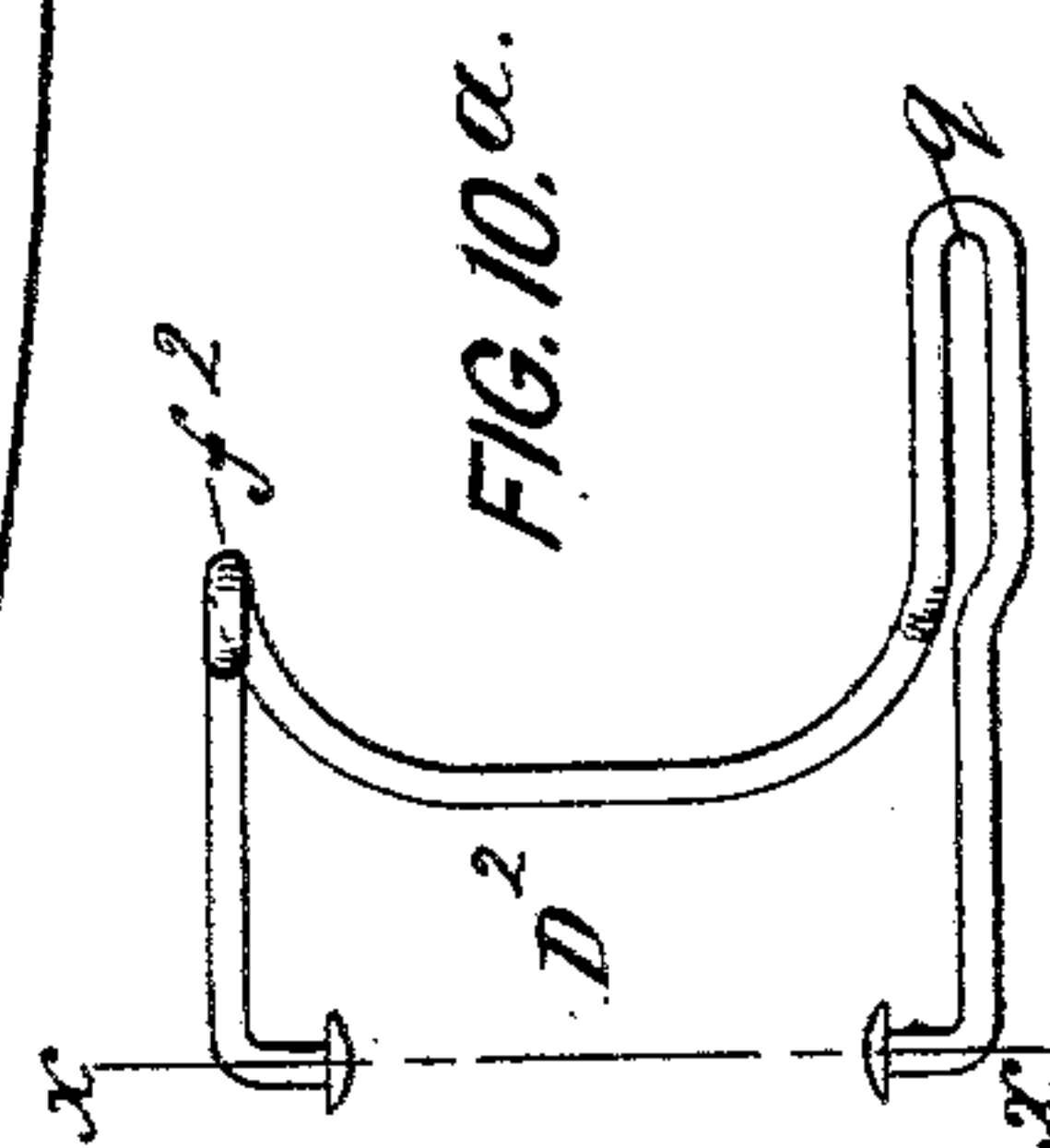
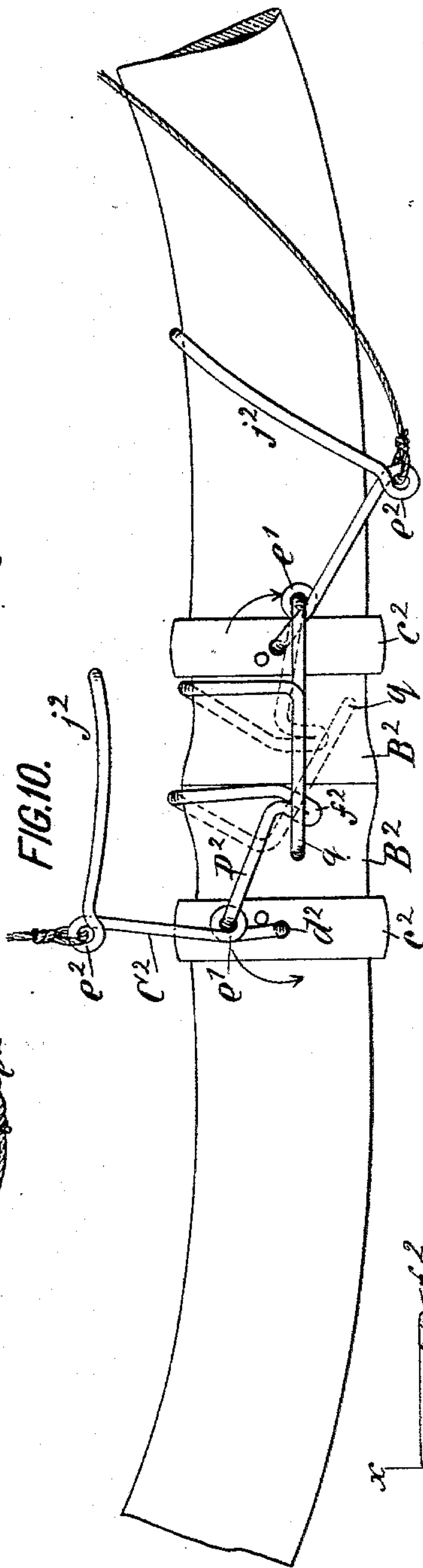
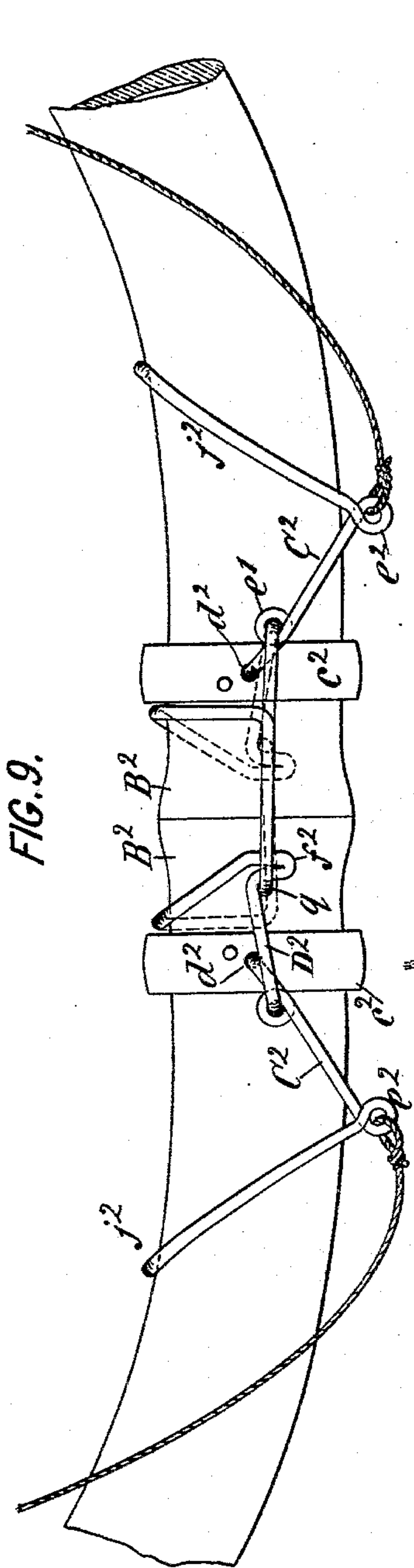
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UNITED STATES PATENT OFFICE.

EDWARD E. GOLD, OF NEW YORK, N. Y.

HOSE-COUPLING.

SPECIFICATION forming part of Letters Patent No. 584,144, dated June 8, 1897.

Application filed December 30, 1893. Serial No. 495,166. (No model.)

To all whom it may concern:

Be it known that I, EDWARD E. GOLD, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Hose-Couplings, of which the following is a specification.

This invention provides an improved means for coupling together two lengths of hose, being especially designed for the air-brake and steam-heating pipes of railway-cars, but adapted also to the uniting of garden and fire hose and the like and pipes, heads, and nipples.

My improved coupling is constructed with two abutting heads forming the terminal ends of the opposite lengths of hose, with a tightening-lever pivoted to either head, a locking-link pivoted to said lever and adapted for engaging the other head and the lever so movable that when it is turned forward the link shall be adapted to freely engage the opposite head, and as it is turned back it draws back the link to press the heads together and carries the pivotal axis of the link past the dead-center in order to lock the coupling and prevent any internal pressure from separating the heads.

My invention also provides for drawing a cap over the open end of either coupling to close the entrance to the holes when uncoupled, in order to exclude foreign substances and, if desired, prevent escape of internal pressure.

Figure 1 of the accompanying drawings is a side elevation showing the preferred embodiment of my invention as applied to two lengths of hose, which are shown coupled together. Fig. 2 is a similar side elevation showing the coupling in the act of being uncoupled. Fig. 3 is a plan of the hose and coupling. Fig. 4 is a side elevation of one half of the coupling and a longitudinal section of the other half, showing the hose uncoupled. Fig. 5 is a transverse section cut on the line 5 5 in Fig. 2 and looking toward the right. Fig. 6 is a perspective view of the tightening-lever. Figs. 7 and 8 are a side elevation and end view of the locking-link. The remaining views illustrate modifications, Fig. 9 being a side elevation showing the heads coupled, and Fig. 10 a similar elevation

showing them in the act of coupling or uncoupling. Fig. 10^a is an inverted plan or underneath view of the locking-link shown in Figs. 9 and 10.

I will first describe the construction shown in Figs. 1 to 8.

Let A A designate the respective lengths of hose that are to be coupled together, and B B the abutting ends thereof, constituting the coupling-heads, these portions being preferably constructed as separate parts fastened to the ends of the hose proper—as, for example, in the manner shown in the sectional part of Fig. 4—where the head B consists of a thick ring *b*, having a flat end or seating face and formed with a tubular shank or neck *a*, which projects inside the hose, the latter being held therein by means of a collar *c*, tightened upon the neck. Any other construction known in the art, however, may be substituted for this specific construction of coupling, provided it is adapted to afford the requisite coöperation with the other parts to be hereinafter described.

To one or either of the coupling-heads is pivoted a lever C, which I shall call the "tightening-lever." This lever and the other parts of the coupling are preferably applied to both heads, only one set of parts, however, being used at one time, so that so far as is essential to my invention the disused set might be wholly omitted. The tightening-lever C is made preferably of U form with its loop passing over the hose and its two legs terminating on opposite sides of the hose and being formed with eyes *c'*, Fig. 6, which eyes are pivotally applied to fulcrum-pins *d d*, projecting from opposite sides of the head B, the fulcrum-axis thus formed being preferably arranged as a horizontal diametrical line intersecting the coupling-head. At a short or suitable distance from the eyes *c'* the lever C is formed with other eyes *e e*, as shown in Fig. 6. The lever C may be conveniently made of stiff wire bent to form the eyes *c* and *e* or formed of cast or wrought metal or malleable cast-iron and in any suitable shape. Pivoted to the tightening-lever in the eyes *e* thereof is a link D. (Shown separately in Figs. 7 and 8.) This link is made, preferably, to extend from both sides of the coupling-head and is formed with some suitable pro-

visions for engaging or locking itself to the opposite coupling-head by means of reciprocal locking provisions provided on the latter. In the construction shown the reciprocal provisions referred to are constituted by the outer ends of the pins d d' , constituting the fulcrum-pivots for the tightening-lever C of the opposite head, but other parts might be provided to be engaged by the locking-link D in lieu thereof. For purposes of distinction in describing the parts I will letter the last-named pins which are engaged by the locking-link in question d' d' . To adapt the link D to engage these pins d' , it is formed at its outer or free portion with hooks f f' , which, when engaged with the pins d' , occupy the position shown in Fig. 1. To connect the opposite sides of the link with each other, the latter is arched or extended over from side to side by a portion lettered g , as shown best in Fig. 8. I have shown the link as made of wire, the portion g constituting the middle of a length of wire which is bent to form the hooks f f' , and is thence extended backwardly and bent inwardly at h h' to constitute pivotal portions which pass through the eyes e e' of the tightening-lever C, the ends of the wire i i' being turned downwardly to prevent the pivotal portions h from slipping out of the eyes. The pivotal portions h h' are in line with each other on an axis x x' . (Shown in Fig. 8, and also in Fig. 5, where the parts are assembled.)

The operation may now be understood. To couple the hose, the two heads B B' are brought together, the tightening-lever of one head is thrown up or forward, and the hooked ends f of the locking-link D are turned down to engage the pins d' on the opposite head. The tightening-lever C is then drawn back and pressed down until it lies against the hose A, as shown in Fig. 1. During this movement it draws back the link D so as to press the two heads together, and toward the end of the movement it carries the pivotal axis x of the link below the middle of the coupling-head, and consequently past the dead-center—that is to say, past a line drawn through the axis of the pins d' and d parallel with the longitudinal axis of the bore of the coupling-heads—bringing the pivotal axis x beneath the imaginary line referred to, so that any pull tending to separate the heads exerts its tension against the lever C in such direction as to tend to thrust the latter farther down, the tendency of which is resisted by the stopping of the lever C against the hose, where its loop or handle portion rests upon the top of the hose. It results from this construction that no pressure tending to force or pull the heads apart and which is within the resisting strength of the material that is employed can become effective to uncouple the heads. To uncouple, it is only necessary to throw up the tightening-lever C, whereby the link D is slackened and the heads will fall apart.

While either set of coupling devices is in

use the other set is turned back out of the way. In Figs. 1, 2, and 3 the left-hand lever C and link D are the ones that are shown to be in use, while the right-hand lever (lettered C') and link (lettered D') are shown thrown back. The lever C' is pivoted on the pins d' , and link D' is employed for coupling while engaging the pins d on the opposite head. It is advantageous to have both heads provided with the coupling devices in order that if the devices upon either head become injured or inoperative those on the opposite head may be used for coupling and also that either coupling-head may be coupled to a plain head having only pins d or d' . In order that when the parts are thrown back the links D or D' shall not fall behind the lever C or C', the lever is formed with outward projections k k' , Fig. 6, against which the sides of the link strike as the latter is thrown back, as shown at the right in Figs 1 and 2.

In order to enable the end of the hose to be closed or capped over when uncoupled, I provide the coupling with a cap E, the one for the right-hand coupling being lettered E'. This cap is provided with arms l l' , extending down on opposite sides of the coupling-head, the end portions of which are pivotally connected to the lever C, through the medium of the pivotal portions h of the link D, in the manner best shown in Fig. 5. When the coupling is uncoupled, this cap E is swung down to a position in front of the coupling-head, whereupon by drawing back the tightening-lever C the cap is drawn back tight against the coupling-head, so as to close it in the manner shown in Fig. 4. The arms l l' of the cap may be either rigidly or pivotally connected to the cap, and in the act of turning back the lever the pivotal connection of these arms with the lever is carried beyond the dead-center in the manner already described with reference to the locking-link, so that no internal pressure can force off the cap unless it exceeds the resisting strength of the materials employed. In hose-couplings for railway-cars it is desirable to be able to thus close the ends of the hose in order to prevent the admission of grit or dirt, and also in air-brake or steam couplings to close the pipe at the end of the train in order to prevent escape of the internal pressure, or in the case of a vacuum-brake to prevent entrance of atmospheric air. In order to prevent the link D from being thrown back behind the arms l of the cap E, these arms are formed with outward projections or stops m , which stand in the way of the link, as shown in Fig. 5. At the same time these projections do not intercept the lever C or C', since the outwardly-projecting portions k of the latter are arranged to carry it out beyond the projections m , as shown in Fig. 5, so that the cap E or E' can be turned to either side of the tightening-lever C or C'.

For a hose-coupling for railway-cars it is desirable that it shall be constructed to auto-

matically uncouple when the two cars are drawn apart, the straightening out of the hose under the pulling apart by the respective sections of cars to which they are attached being the means commonly utilized for effecting the uncoupling. To adapt my improved coupling to uncouple in this manner, I have provided it with a special construction, which I will now describe. To any external part of the coupling-head and suitably to the external collar *c* is pivoted on a fulcrum-pin *n* a lever *G*, which extends back and is provided with a ring *G'*, which embraces the hose. The lever is also extended forward beyond its fulcrumed pivot *n* to form a short arm which terminates in an outward projection *p*, which comes beneath the tightening-lever *C*. In the normal drooping position of the hose-sections while coupled, as shown in Fig. 1, this projection *p* stands just beneath the locked position of the lever *C*, and consequently does not interfere with the operation of coupling; but if a coupling be not uncoupled by hand before the cars are drawn apart the straightening out of the two lengths of hose will straighten the levers *G G*, applied to them, and the projections *p* on these levers will consequently be thrown upward, as shown in Fig. 2, and will throw up the levers *C C'* of the two couplings, so that the locked lever will be carried high enough to bring the pivotal axis of the locking-link *D* above the dead-center, whereupon the two coupling-heads will fall apart. Each lever *G* is preferably a double one, extending on opposite sides of the hose, as shown in Fig. 3, and having projections *p p* on both sides to engage both arms or portions of the lever *C*.

Figs. 9 and 10 illustrate a modification in which the coupling-heads (here lettered *B²* *B²*) are integral with the hose, several fastening devices being mounted upon the clamping-collars lettered *c²*. On each coupling-head the tightening-lever *C²* is pivoted on opposite sides of this collar at *d²*, and is formed with the eyes *e'*, to which is pivoted a locking-link *D²*, the tightening-lever being thence carried backward and formed with another eye *e²* and bent at right angles to form a loop *j²*, extending over the hose. The two locking-hooks *D²* of the respective coupling-heads are reciprocal, being adapted for engagement with each other, so that each constitutes the locking provision engaged by the link on the opposite head. To this end each link is formed on one side of the coupling-head with a hook *f²* and on the opposite side of the head with an eye *q*, as best shown in Fig. 10^a, which shows the under side of one locking-link detached. The hook *f²* on one link hooks into the loop *q* on the other, and vice versa. Consequently the coupling may be tightened by means of either tightening-lever, both levers being in the locked position when the coupling is coupled, as shown in Fig. 9. Fig. 10 shows the operation of coupling or uncoupling the tightening-lever at the left.

When my coupling is used for steam heating, it is desirable to provide it with automatic traps for draining off any accumulated water of condensation whenever the steam-pressure is turned off. For this purpose I have shown a gravity-trap *H* applied to the under side of each of the coupling-heads, which trap is of a well-known construction. (Shown in section in Fig. 4.) This trap is best applied in an oblique position, but may be applied vertically to the under side of the coupling-head, as shown, by specially constructing it to that end, so that it shall swing open when the internal pressure is relieved and let any accumulated water run out.

The fulcrum-pins *n* extend outwardly as projections in the path of the ends *i* of the links *D*, as shown in Figs. 1 to 8, and these ends are shaped to engage the pins *n* as the eyes *e* of the lever *C* rise past the dead-center, and by such engagement to tilt their link upwardly under the further movement of the lever, and thereby raise the hooks *f* of the link up relatively to the pins these hooks engage.

I claim as my invention the following-defined novel features, substantially as hereinbefore set forth, namely:

1. In a hose-coupling the combination of two abutting heads, a tightening-lever pivoted to one head, a locking-link pivoted to said lever, a reciprocal locking device applied to the other head to be engaged by said link, said lever constructed as it is turned back to carry the pivotal axis of the link past the dead-center to tighten and lock the coupling, and an unlocking-lever *G* fulcrumed to the coupling-head with its long arm embracing the hose and its short arm formed with a projection *p* adapted as the hose is straightened out to engage said tightening-lever and throw it up to carry the pivotal axis of the link past the dead-center to loosen and unlock the coupling.

2. In a coupling the combination of two abutting heads, a tightening-lever pivoted to one head, a locking-link pivoted to said lever and adapted to engage the opposite head, and a cap adapted to be turned down against the head to which said lever is pivoted and close the opening therein, said cap having arms extending to said lever and pivoted thereto, and the lever constructed as it is turned back when said locking-link is engaged with the opposite head to carry the pivotal axis of the link past the dead-center to tighten and lock the coupling, and also when the coupling is uncoupled and said cap is turned down opposite the coupling-head to carry its pivotal engagement with the arms of said cap past the dead-center as it is turned back to tighten the cap against the coupling-head.

3. In a coupling the combination of two abutting heads, a tightening-lever *C* pivoted to one head, a locking-link *D* pivoted to said lever, a reciprocal locking device applied to the other head to be engaged by said link, a

cap E having arms *l l* pivoted to said lever and adapted to be turned down when the coupling is uncoupled to close the opening into said head, the arms *l* and link D being both
5 pivoted to the lever C on the same axis, and the lever C being constructed as it is turned back to carry said pivotal axis past the dead-center to tighten and lock either the engagement of the link with the opposite head or the
10 engagement of the cap with its own head.

4. In a coupling the combination of two abutting heads, a tightening-lever C pivoted to one head, a locking-link D pivoted to said

lever and adapted to engage the opposite head, a cap E having arms *l* also pivoted to 15 said lever, and projections *m* on said arms adapted to encounter said link and prevent the link being swung back of the cap.

In witness whereof I have hereunto signed my name in the presence of two subscribing 20 witnesses.

EDWARD E. GOLD.

Witnesses:

GEORGE H. FRASER,
THOMAS F. WALLACE.