

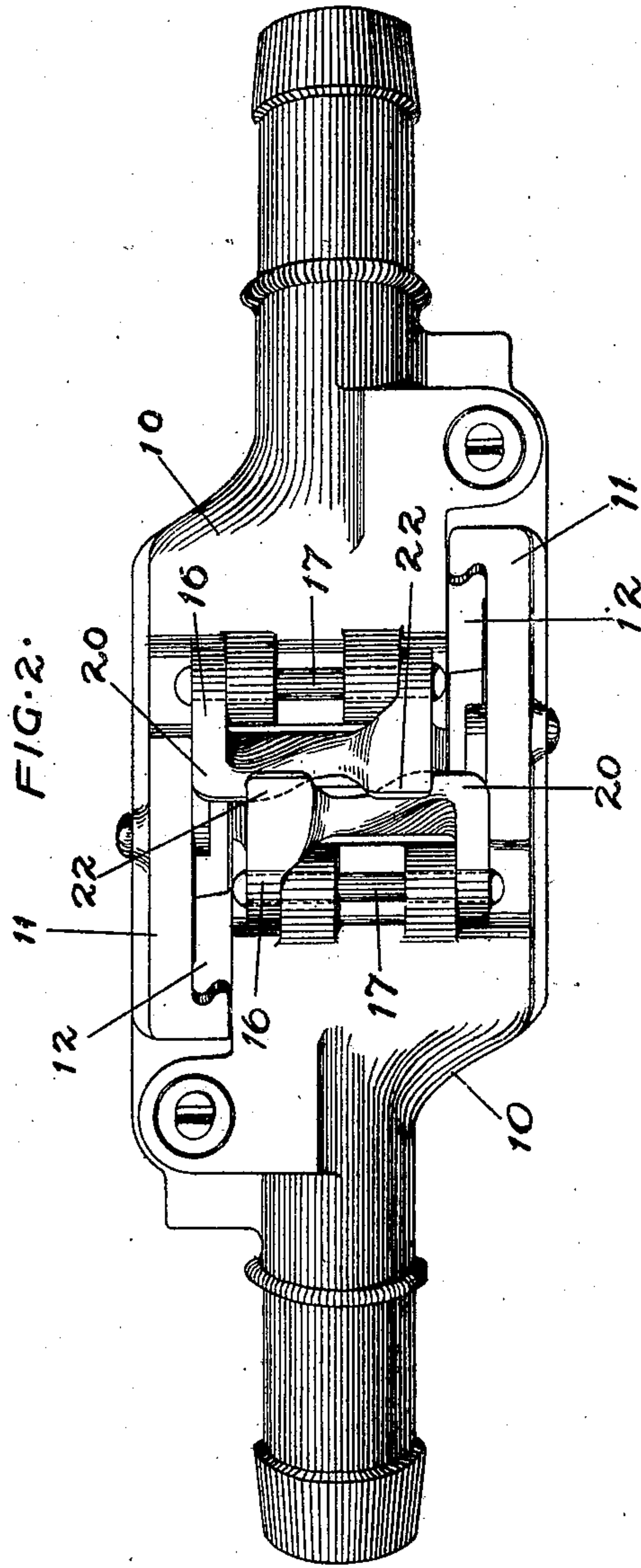
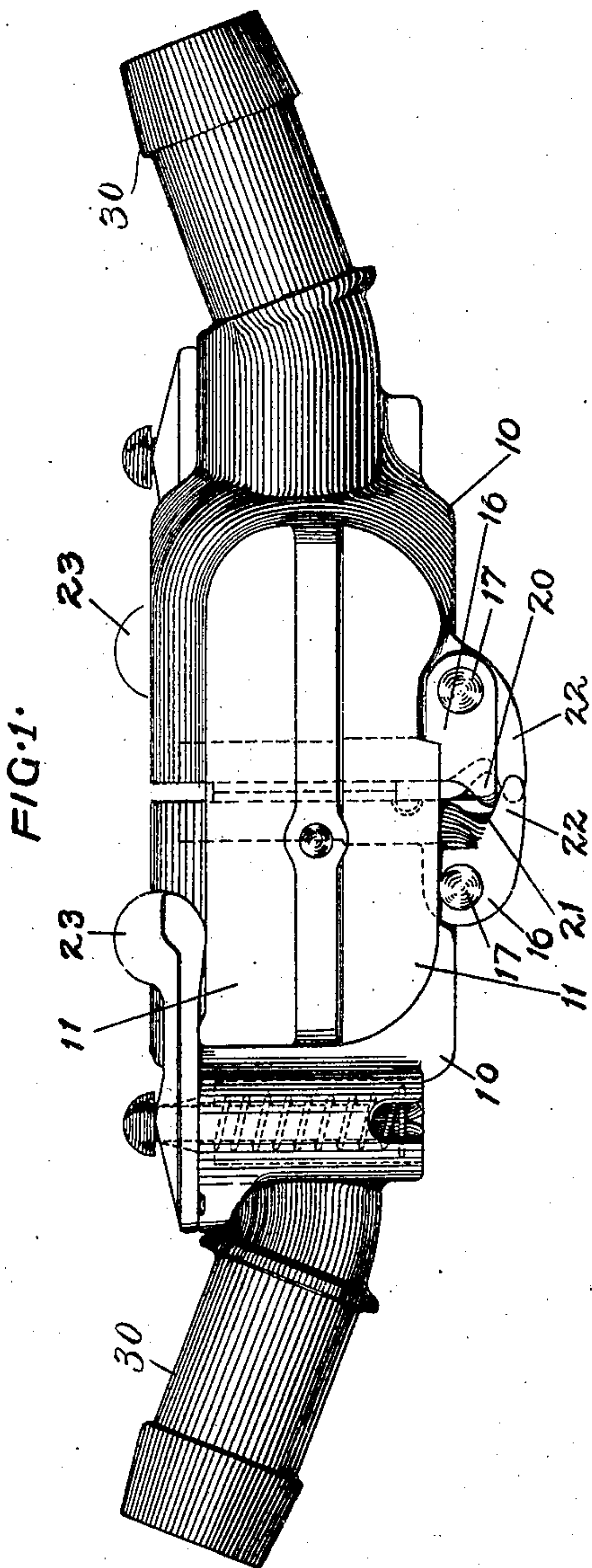
No. 847,292.

PATENTED MAR. 12, 1907.

J. F. McELROY.
HOSE COUPLING.

APPLICATION FILED JULY 13, 1906.

3 SHEETS—SHEET 1.



WITNESSES.

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3 SHEETS—SHEET 2.

FIG. 3.

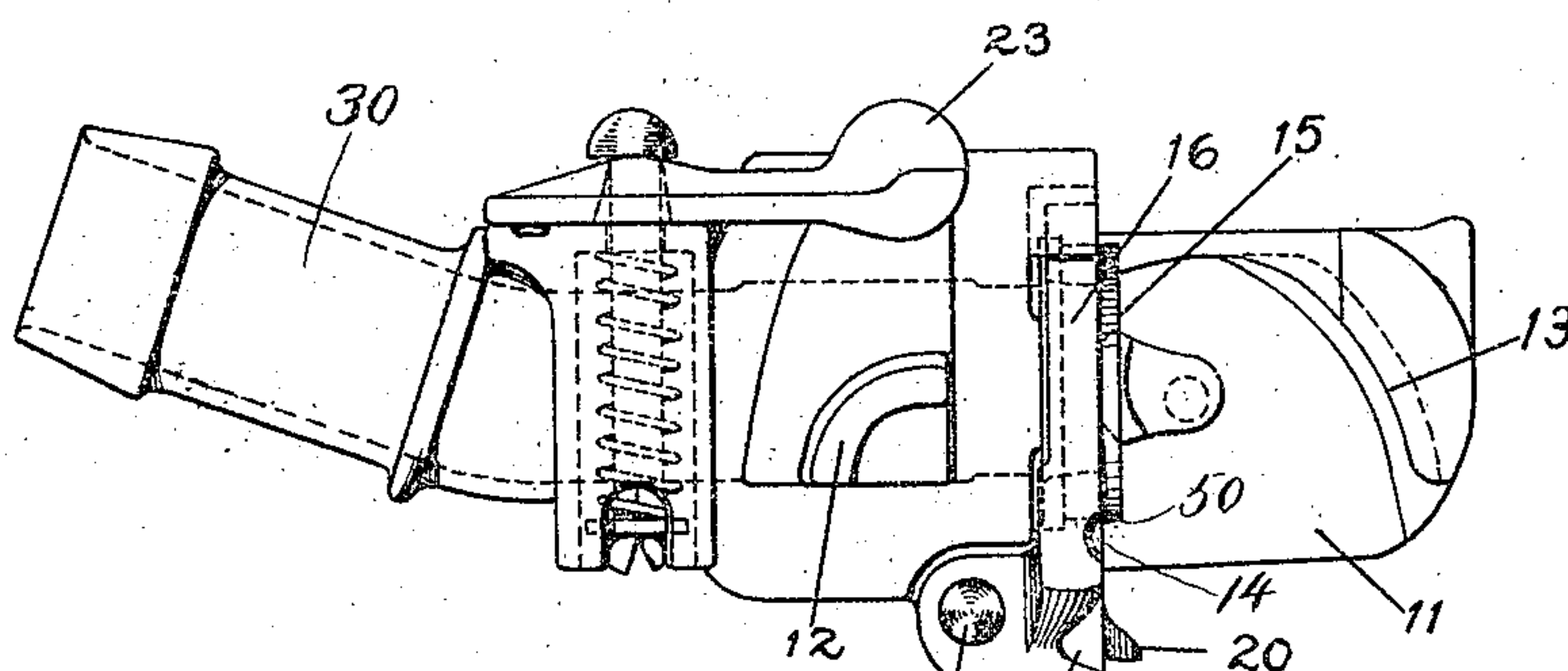


FIG. 4.

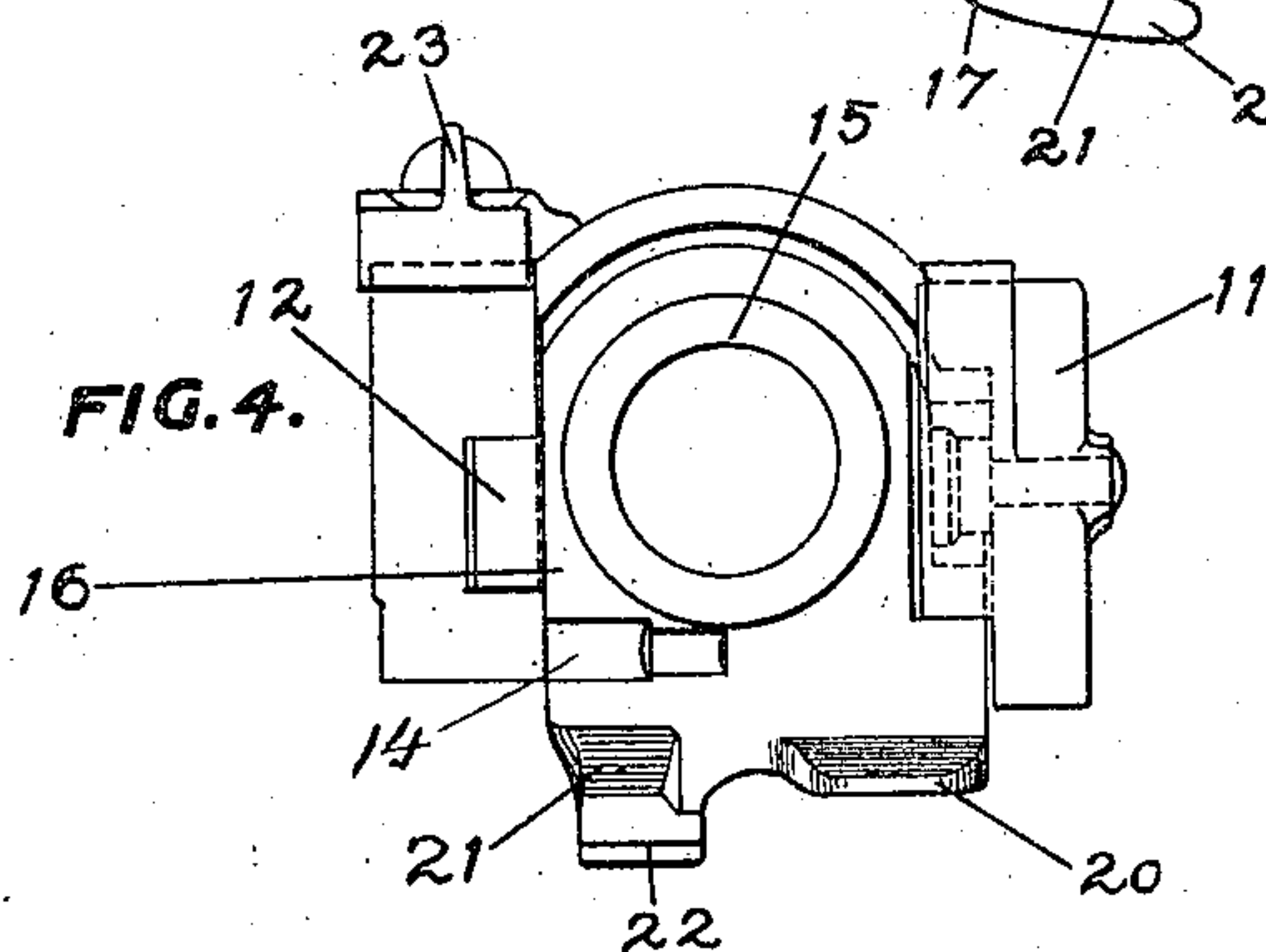
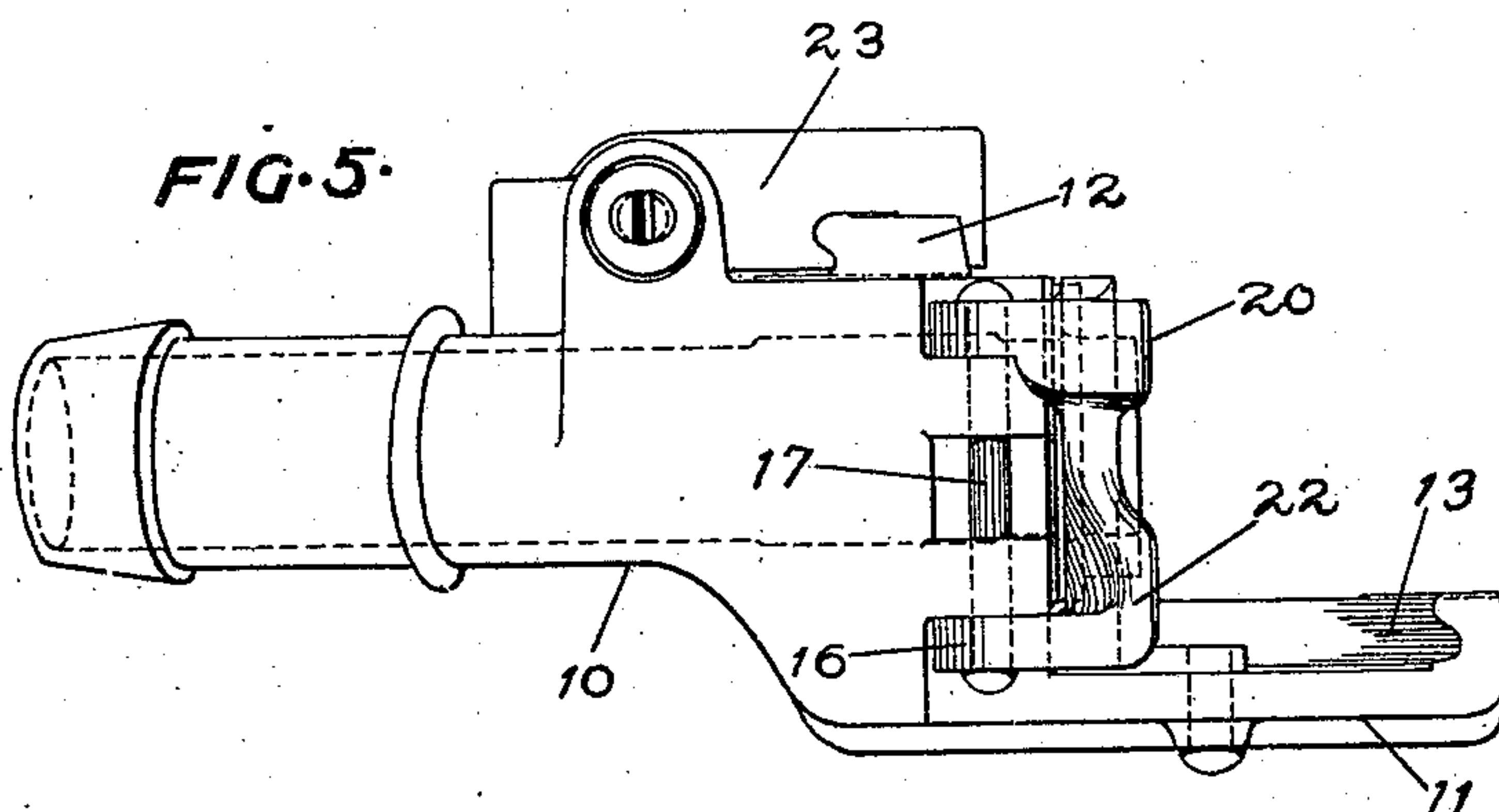


FIG. 5.



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3 SHEETS—SHEET 3.

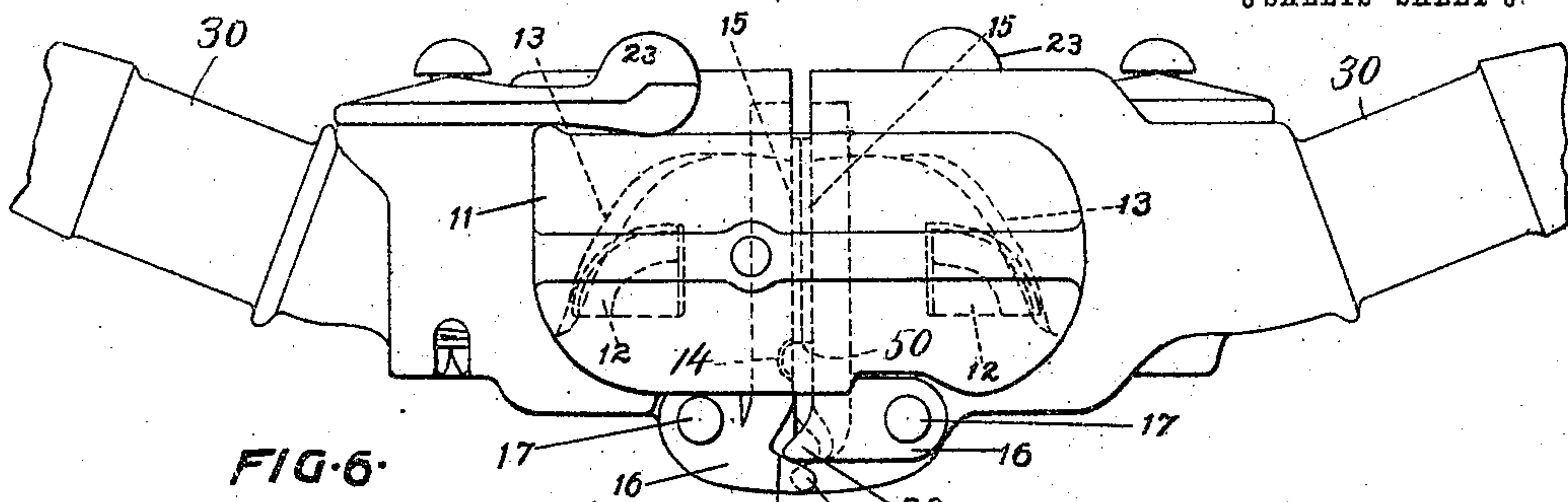


FIG. 6.

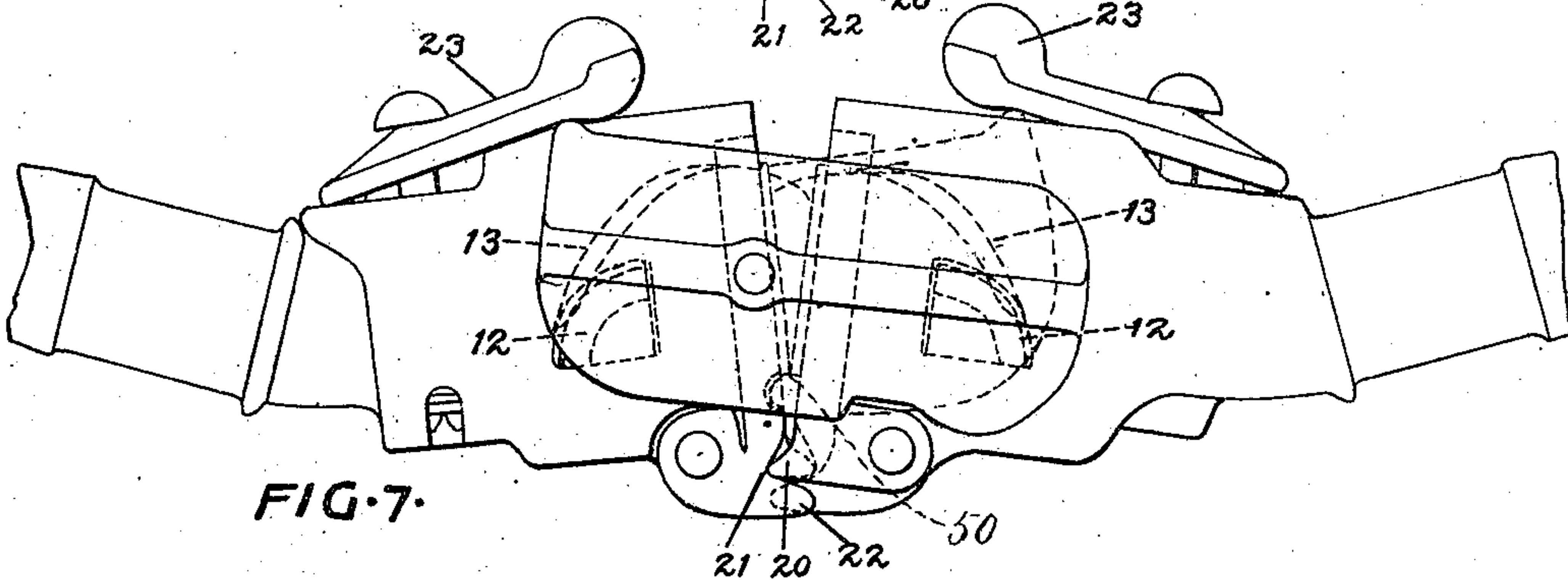


FIG. 7.

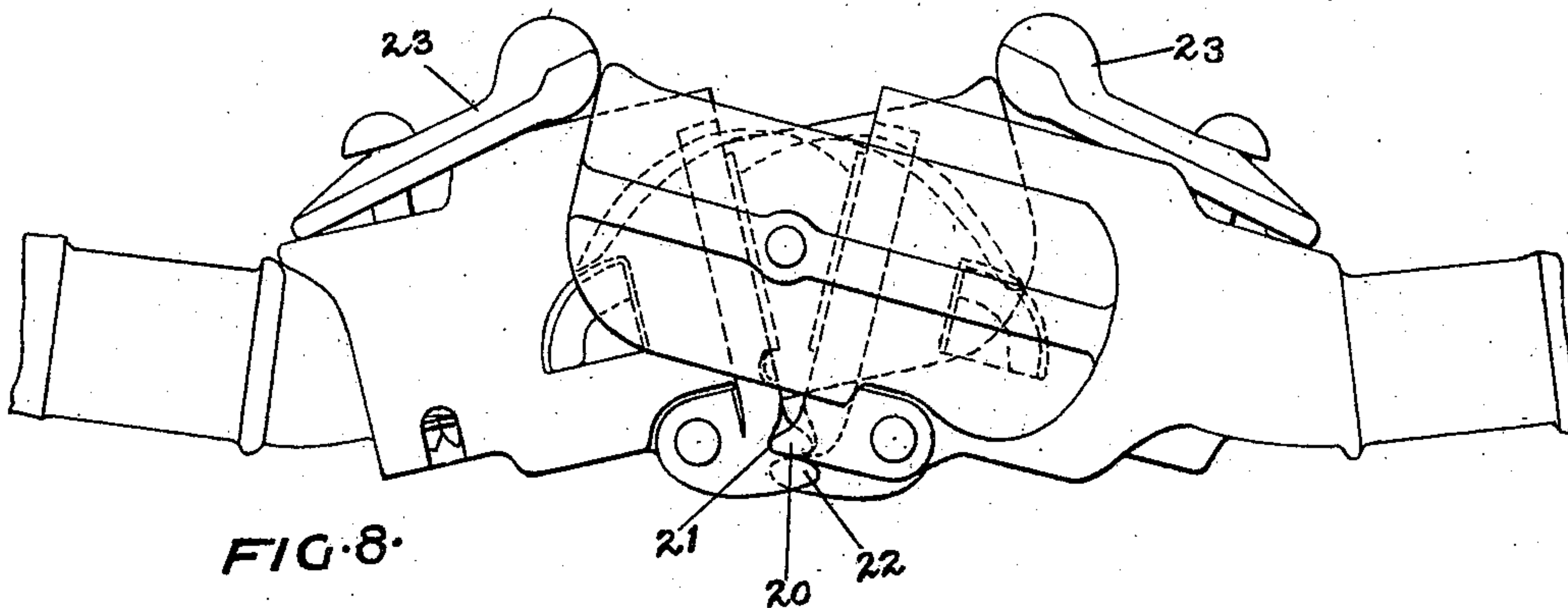


FIG. 8.

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UNITED STATES PATENT OFFICE.

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HOSE-COUPLING.

No. 847,292.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed July 13, 1906. Serial No. 325,990.

To all whom it may concern:

Be it known that I, JAMES F. McELROY, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Hose-Couplers, of which the following is a specification.

This invention relates to hose-couplers of the Sewall type, and it aims to provide couplers which will give a secure locking action and yet be more readily connected and disconnected than heretofore.

In the Sewall coupler the parts turn upon an axis at or near the lower edge of the port-faces, and it has been customary to provide each coupler-half with the complementary parts of a pinless hinge, each coupler-half having a groove and a rib in line near its forward lower corner. This construction affords both a guide and a fulcrum or pivot on which to turn the halves in connecting and disconnecting their interlocking members. The pivot should be as near as possible to the longitudinal port axis in order that the curved working faces of the interlocking wings and lugs may approach as near as possible a line at right angles to said port axis, so as to afford an efficient resistance to the pressure of steam acting along that axis and keep the slant of these working faces well within the critical angle. As the hinge must be below the ports themselves and not interfere with the gasket, and yet be at a short radius from the port axis, as noted above, it has been difficult to construct a proper hinge giving a secure lock and also permitting a ready disconnection of the coupler-halves. My present invention accomplishes the last-named result by the use of two successively-acting pivots, and it further includes some constructive improvements which are hereinafter noted.

Of the accompanying drawings, Figure 1 represents a side elevation of interlocked coupler-halves embodying my invention. Fig. 2 represents a plan view of the under side of the couplers. Fig. 3 represents a side elevation of a single coupler. Fig. 4 represents an end view thereof. Fig. 5 represents a reverse plan view. Figs. 6, 7, and 8 represent elevations showing the connected coupler and two phases in the operation of disconnecting the same.

The same reference characters represent the same parts in all the views.

In the drawings, 10 10 represent duplicate coupler halves or members of the straight-port Sewall type with the usual wing 11 on one side of each member and lug 12 on the opposite side thereof, adapted to interlock, respectively, with the lug and wing of the complementary coupler-half, and, as indicated in Figs. 6, 7, and 8, the overhanging locking-faces 13 of the wings and the faces of the lugs 12 are at the plane of the longitudinal axis of the coupler nearly at right angles to said axis, though curved away at a slant above the axis.

15 are the usual gaskets or port-seats, mounted in the gasket-holders 16, hinged at 17. In the preliminary uncoupling movement the coupler-halves turn upon an axis 50 at the lower edge of the gaskets. I have here omitted the usual fulcrum-rib, but provide a groove 14, into which a rib on the opposite coupler-half may fit in case a new coupler-half is coupled with an old one having the rib.

Below the axis 50 each coupler-half is provided with two supplementary pivot or fulcrum members located on opposite sides of the vertical diameter, one being a lug 20, projecting forwardly from the front coupler-face and adapted to engage a complementary groove in the other coupler member, and the other being a groove 21, adapted to receive the lug 20 of the opposite coupler member. These pivot members, as here shown, are each formed upon the gasket-holder 16. The lower side of the groove 21 is a forwardly-projecting toe 22, whose upper face is preferably slightly concave and may be curved approximately on an arc whose center is at the axis 50. I have further shown each coupler-half provided with a spring-latch 23, adapted to engage the wing of the opposite coupler-half when the two halves are engaged and adapted to be turned into working position on a vertical axis. These latches automatically release when the coupler is disjointed, as indicated in Figs. 7 and 8. In connecting the coupler the two halves are opened out at an angle and brought together sidewise, and each lug 20 enters the opposite groove 21, as indicated in Fig. 8, the latches 23, however, being swung aside in connecting the coupler. The coupler-halves are then swung toward a straight line, as indicated generally in Fig. 7, to bring the interlocking wings and lugs 11 12 into engagement, and this motion causes the

gaskets 15 to meet on the axis 50. Thereafter the coupler turns on this axis into the full-locking position represented in Fig. 6, the latches 23 being then swung manually into operative position.

It is in disconnecting the coupler that the principal advantages of my invention become manifest. During the first part of the uncoupling movement the coupler-halves turn upon the axis 50 until the lugs 20 bottom against the grooves 21, from which they are partially withdrawn in the fully-coupled position shown in Fig. 6. At the time this bottoming occurs the interlocking members 13 12 have substantially unlocked from each other, so that a further pivotal movement on a longer radius will more rapidly clear these members. This longer radius is afforded by the new axis located in the vicinity of the points of lugs 20, upon which the coupler-halves swing during the latter part of the disconnecting movement, (indicated in Fig. 8,) when of course the gaskets 15 become separated at their lower edges. In the final movement it will be noted that the toe 22 of each coupler-half exerts a prying action somewhat like the end of a crowbar underneath the opposite lug 20, tending to finally and more rapidly clear the interlocking parts. In connecting the coupler the two lugs 20 and 22, located at different heights and each meeting the other in the opposite coupler-half, enable the coupling to be more readily effected than with the old rib and groove located close to the gasket.

One of the effects of the successively-acting pivots is to afford a short radius or leverage for the disconnecting pressure of the steam to act upon against the counter force of gravity when the coupler is connected and a longer radius affording a quick disconnecting action when it is desired to disjoint the coupler. This longer radius makes it easier to take the coupler apart and requires a smaller angle of turn. The coupler-halves are somewhat like two levers on which gravity acts to maintain the interlocking action and keep a pressure-tight joint, one arm of the lever extending from the pivot or fulcrum out to the nozzle 30 of the coupler and the other arm extending upwardly to the gasket-face, at which point the "work" or resistance is encountered. It is obvious that the greater the ratio of the first arm to the second the easier it will be for gravity to overcome the pressure of the steam acting on the shorter arm, and I attain this desirable proportion by locating the upper pivot 50 approximately at the lower edge of the gaskets 15. When the couplers are disconnected, this pivot operates first, and the lower pivot on the lug 20 operates afterward, as above described.

I claim—

1. Complementary coupler-halves having members forming a plurality of axes of rota-

tion which come into operation successively during the relative angular movement of said halves.

2. A hose-coupler comprising two complementary halves provided with port-seats which are brought together by a pivotal movement of the halves, and having members forming successively-acting centers of pivotal movement.

3. A straight-port hose-coupler comprising two complementary halves provided with port-seats which are brought together and separated by a hinging movement of the halves, means forming a hinge-center of relatively short radius operative during the first part of the disconnecting movement of said halves, and means forming a second hinge-center of relatively long radius operative during the latter part of said disconnecting movement.

4. A hose-coupler comprising complementary coupler-halves having port-seats which are abutted and separated by a hinging movement about an axis approximating one edge of the seats, and means on the respective halves forming a second axis of hinging movement more remote from the longitudinal port axis.

5. Interlocking complementary coupler-halves adapted to connect and disconnect by a relative hinging movement, said halves having matching hinge members which are separated when the halves are fully coupled and are brought together to constitute a center of rotation by the preliminary uncoupling movement of the halves.

6. A hose-coupler comprising halves having interlocking members and port-seats and adapted to turn substantially upon one edge of the seats during the preliminary uncoupling movement of the halves, said halves having hinge members brought together by said preliminary movement and forming a second axis of rotation for the further uncoupling movement.

7. A hose-coupler comprising coupler-halves having interlocking members and port-seats, said halves being constrained by said members to a preliminary uncoupling movement about an axis relatively near to the longitudinal port axis before the interlocking members have unlocked, and turning about a more remote axis when said members have substantially unlocked.

8. A straight-port hose-coupler comprising complementary halves having interlocking members, and hinge members brought to a center of rotation when the interlocking members have substantially unlocked by the preliminary uncoupling movement.

9. A hose-coupler comprising complementary halves having interlocking lugs and wings and abutting port-seats parallel with the axis of uncoupling movement, and hinge members which are separated when the port-

seats fully abut but are brought together by a preliminary uncoupling movement about an axis approximating one edge of said port-seats, when the lugs and wings have substantially unlocked.

10. A hose-coupler comprising complementary halves provided with interlocking members adapted to engage and disengage by a relative pivotal movement of the halves, each coupler-half being provided with a pivot-lug and a groove, adapted to match with the groove and pivot-lug of the opposite coupler-half, and each groove having a projecting toe on its lower side so disposed as to exert a prying action during the latter part of the disconnecting movement of the coupler-halves so as to assist in clearing the interlocking members.

11. A hose-coupler comprising complementary coupler-halves provided with port-seats brought together by a hinging movement of said coupler-halves, each coupler-half having a hinging-lug projecting forwardly from the

lower edge of its port-face, and a groove to receive the hinging-lug of the opposite coupler-half, and further having a toe forming the lower side of said groove and projecting forwardly from the port-face of the coupler-half on which the toe is formed.

12. A member of a hose-coupler having a port-face parallel with the hinge axis about which said member turns in coupling and uncoupling with the complementary member, and two lugs projecting from the port-face and located at different distances from the longitudinal axis, the nearer lug being adapted to meet the farther lug on the complementary member and vice versa.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses, this 11th day of July, 1906.

JAMES F. McELROY.

Witnesses:

BEULAH CARLE,
ERNEST D. JANSEN.