

No. 629,469.

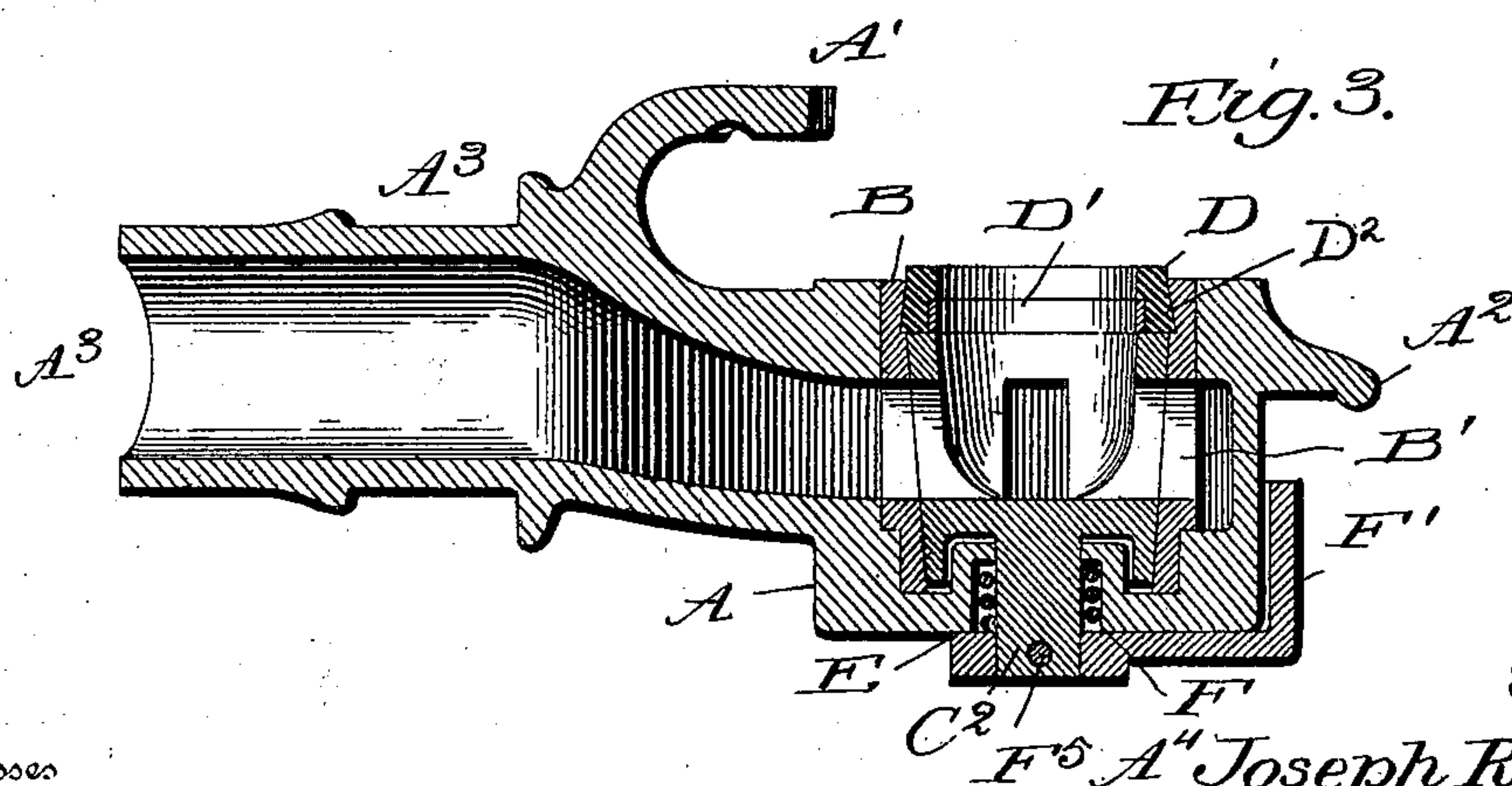
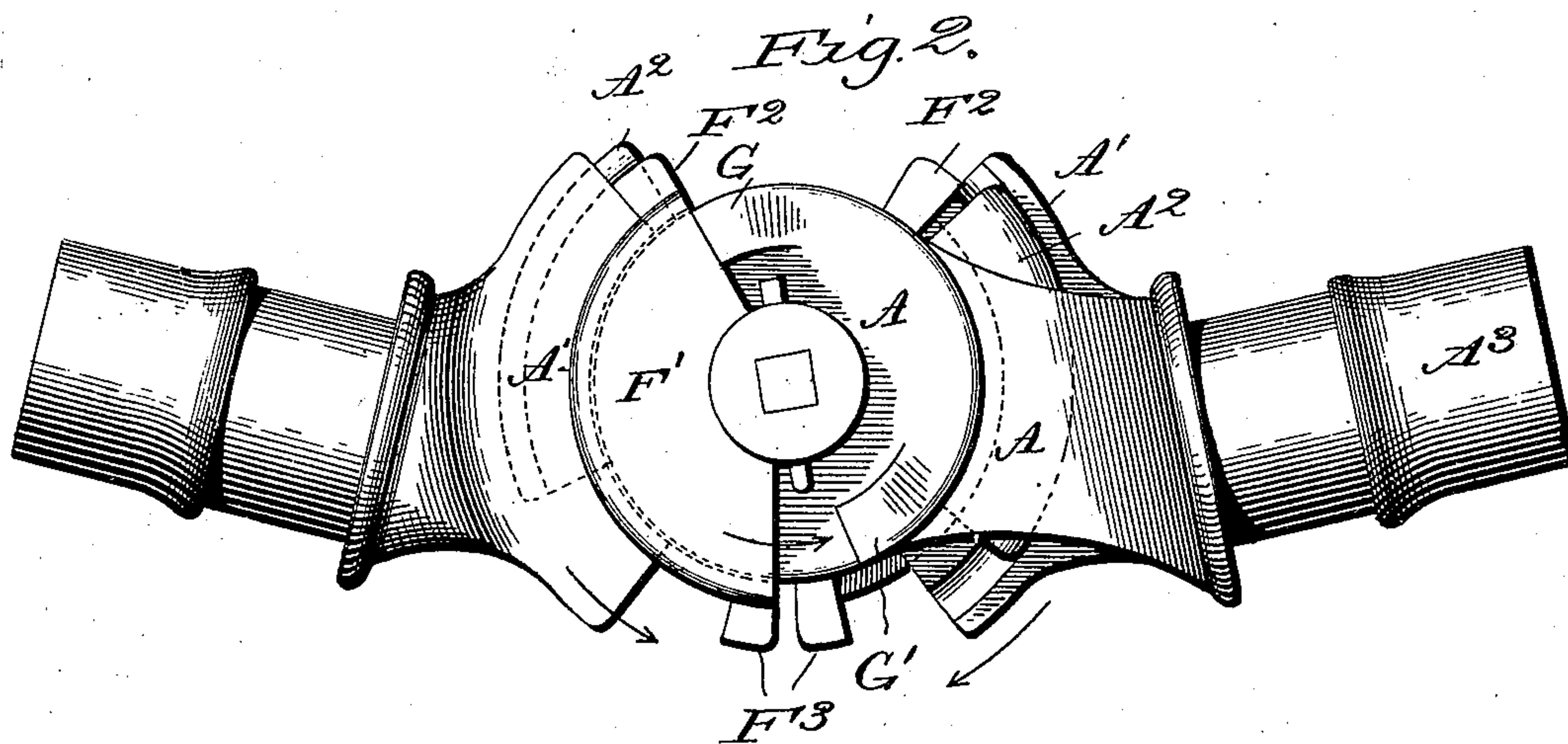
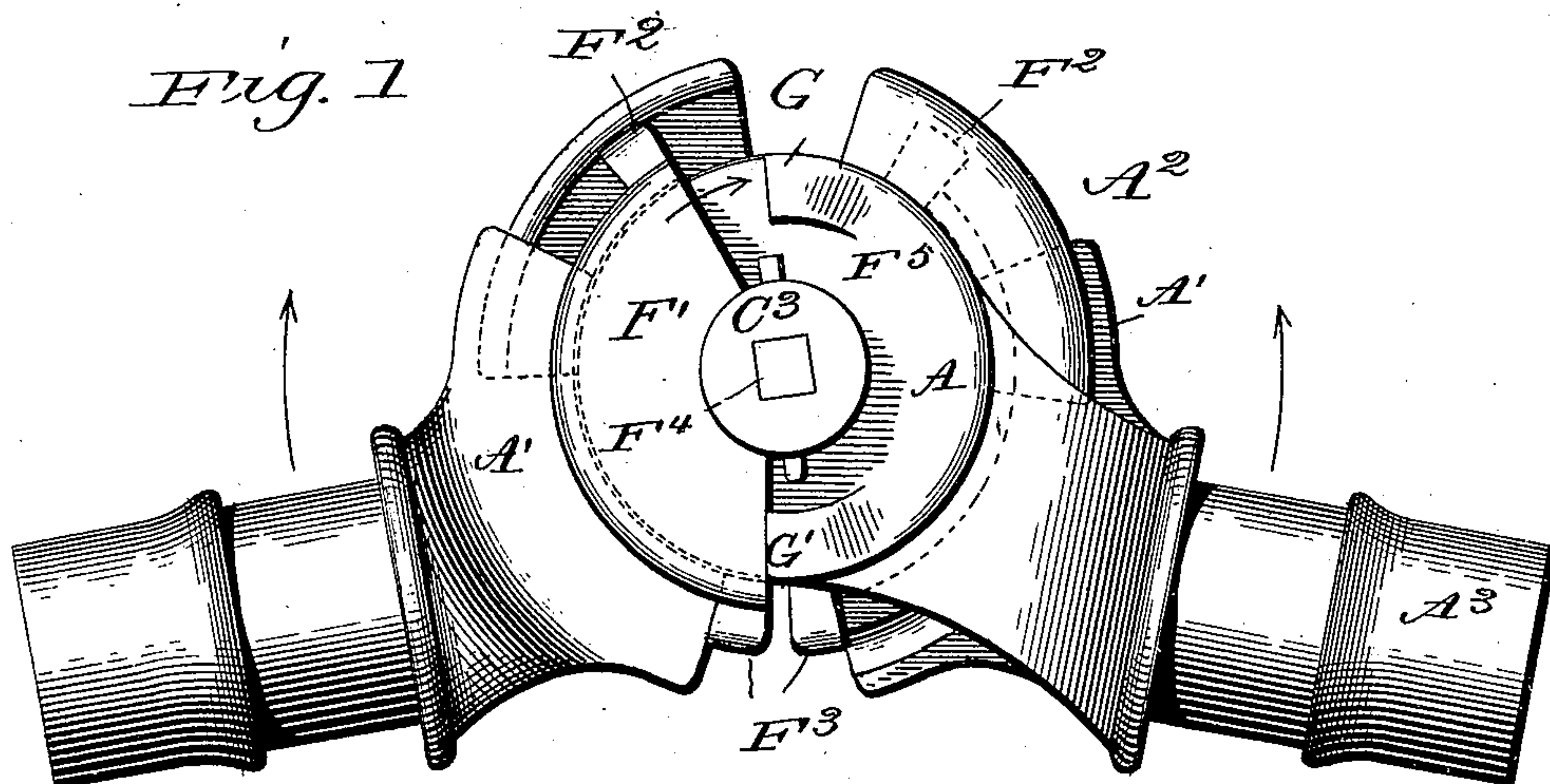
Patented July 25, 1899.

J. REDFERN.
TRAIN PIPE COUPLING.

(No Model.)

(Application filed Nov. 3, 1898.)

2 Sheets—Sheet 1.



Witnesses
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2 Sheets—Sheet 2.

Fig. 4.

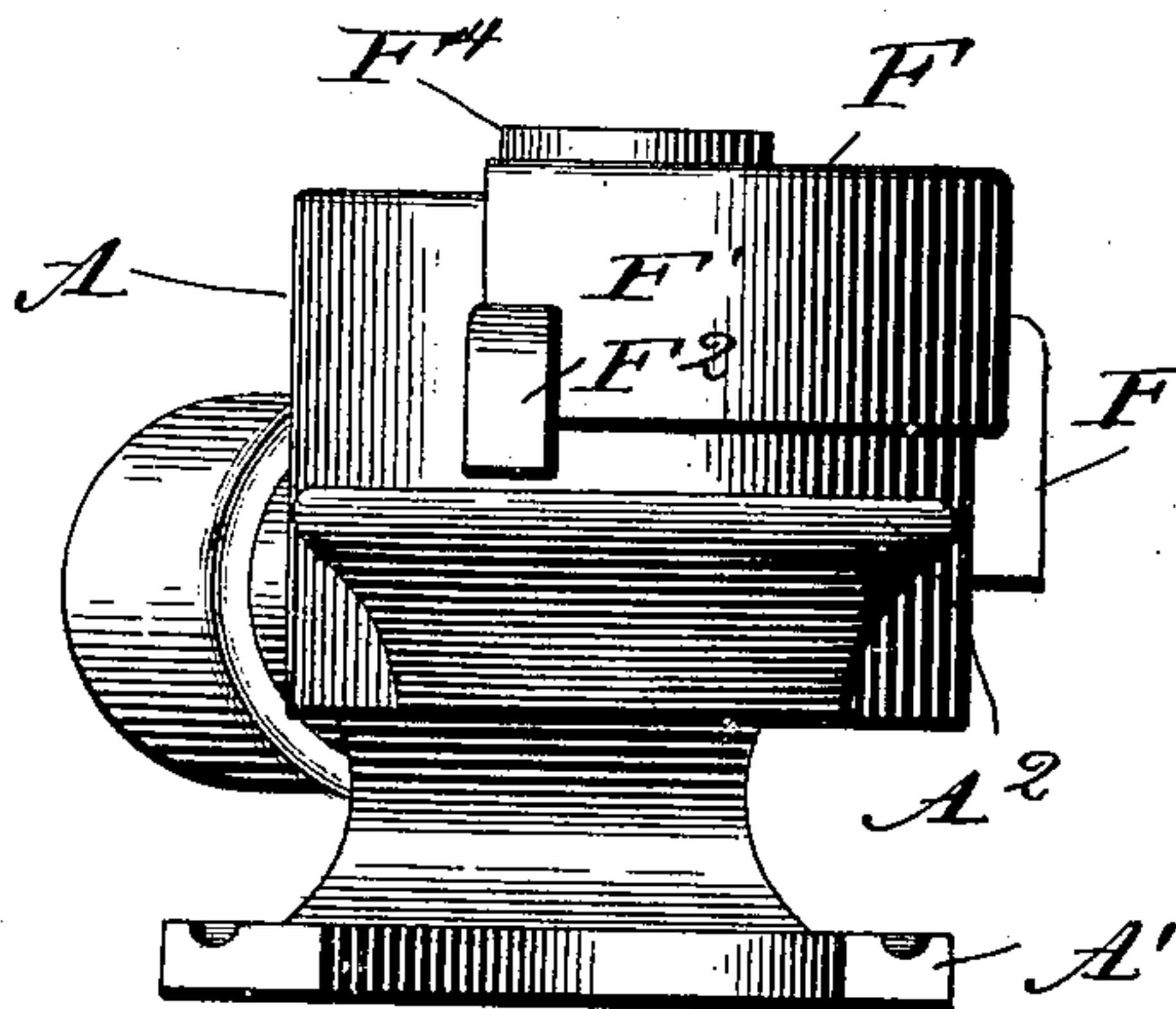


Fig. 5.

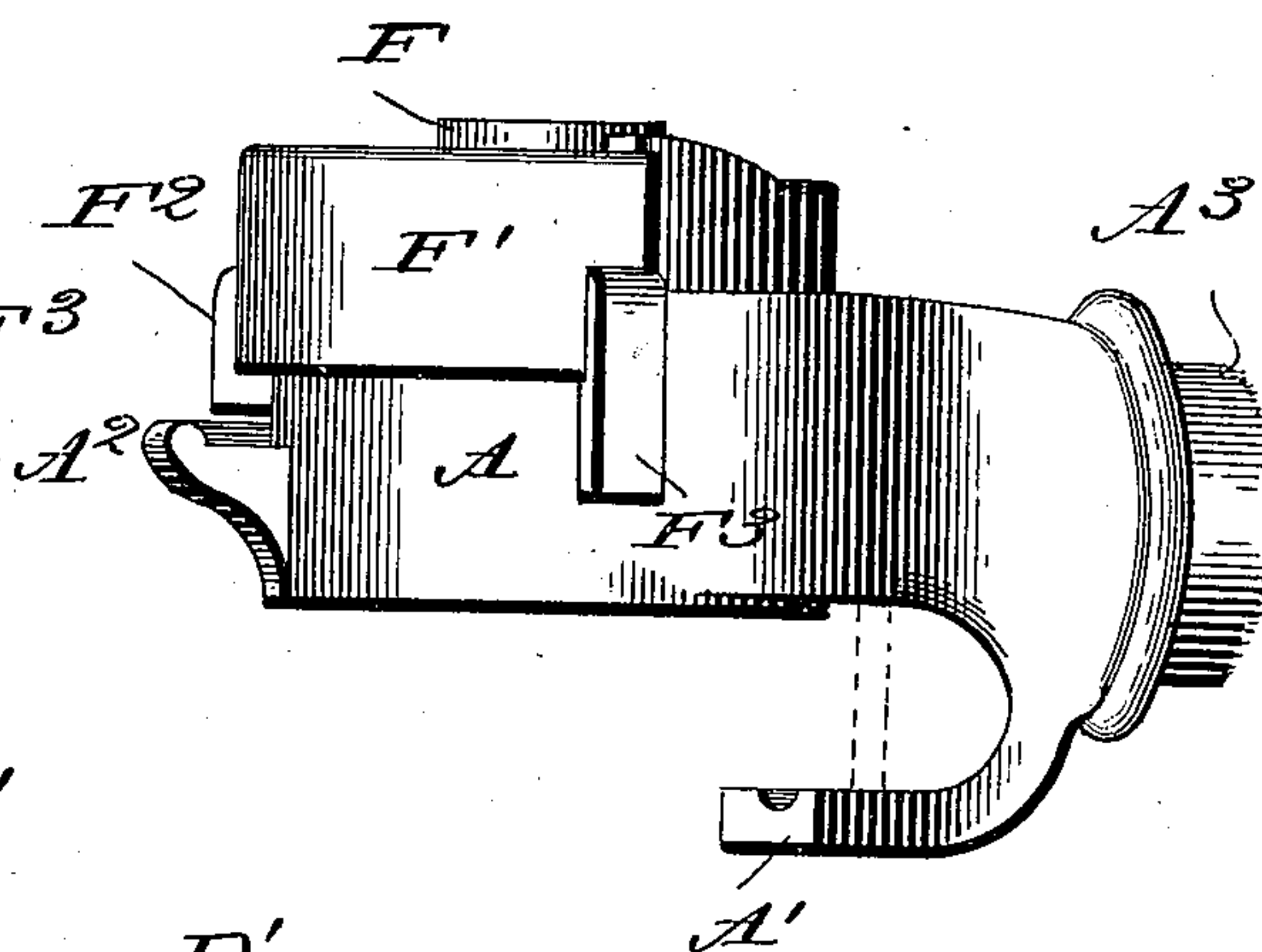


Fig. 6.

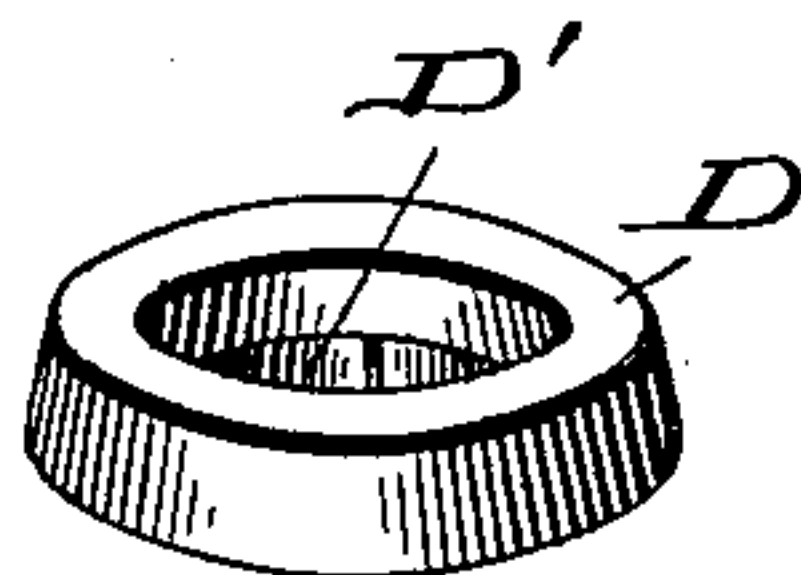


Fig. 7.

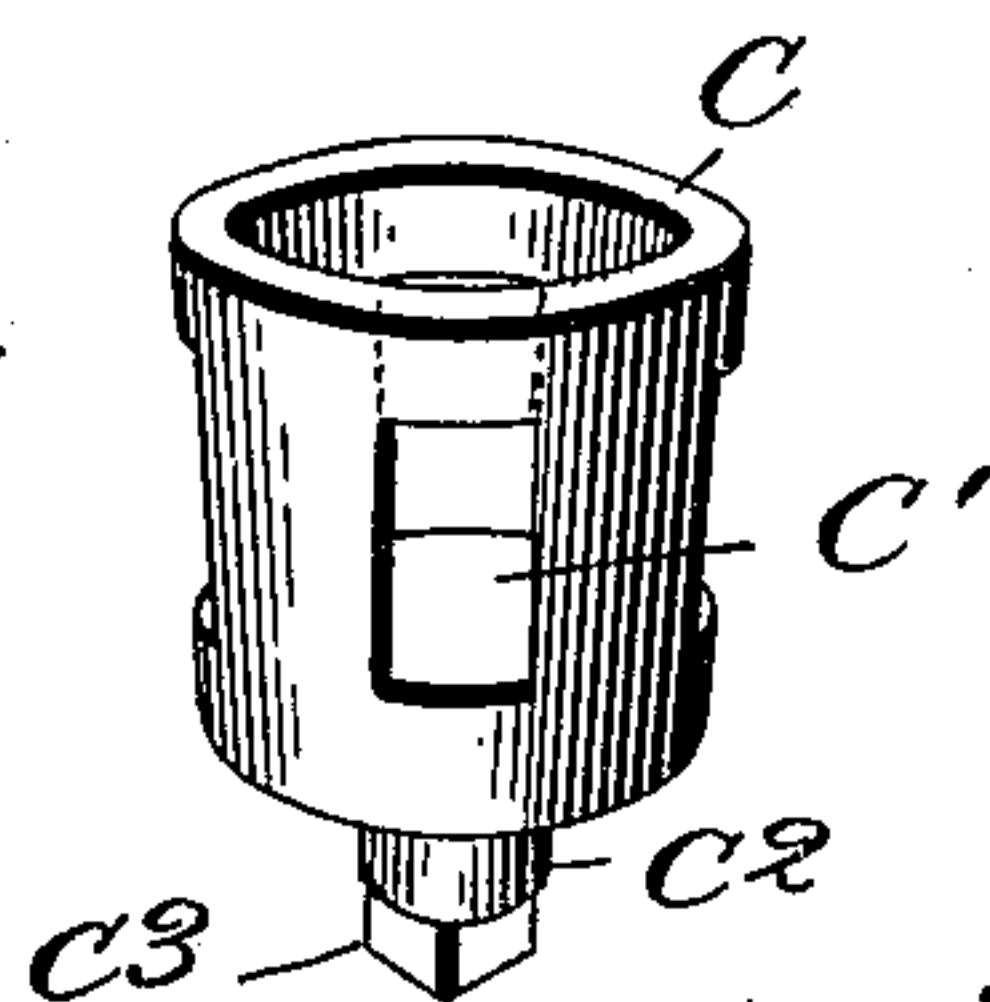


Fig. 8.

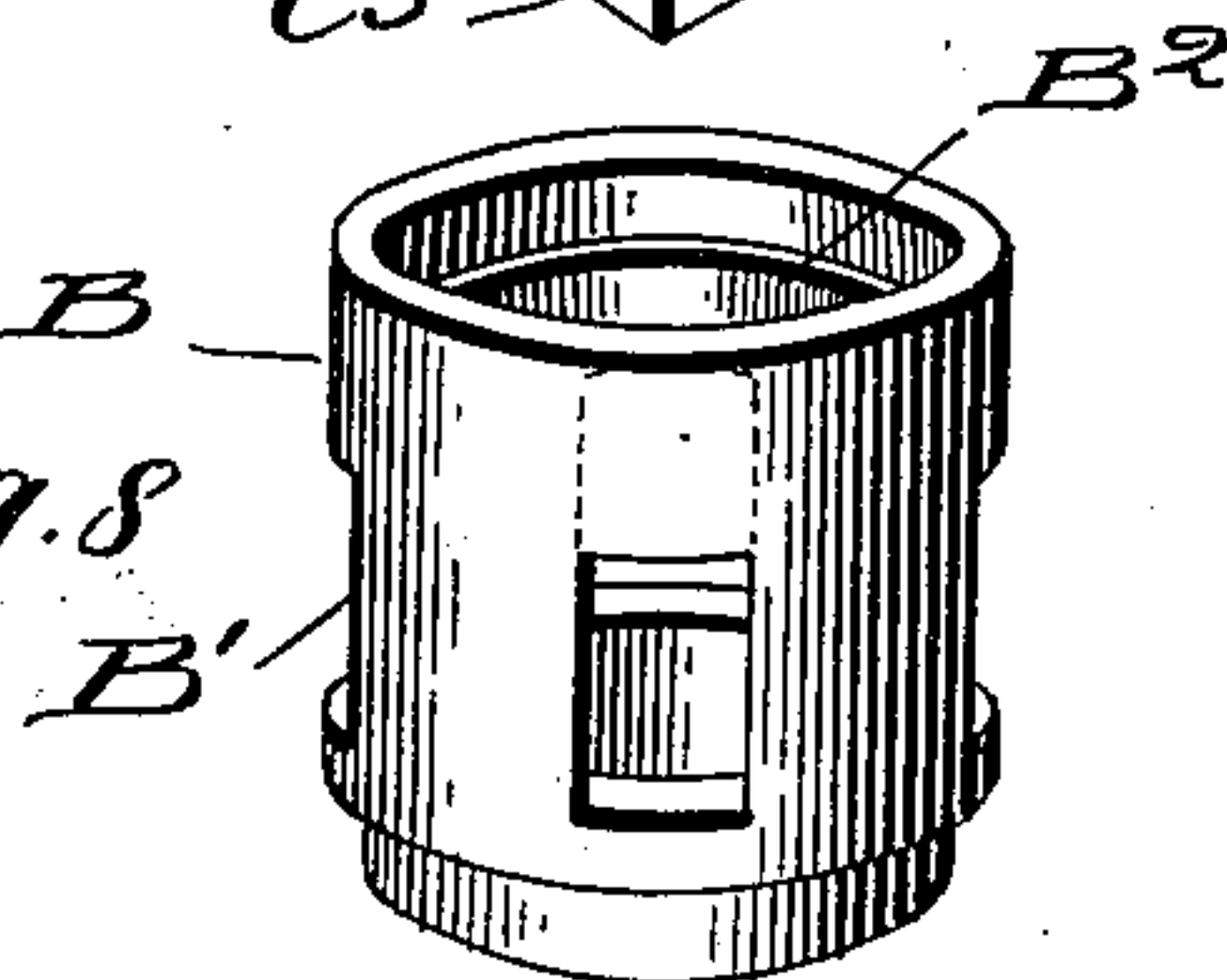
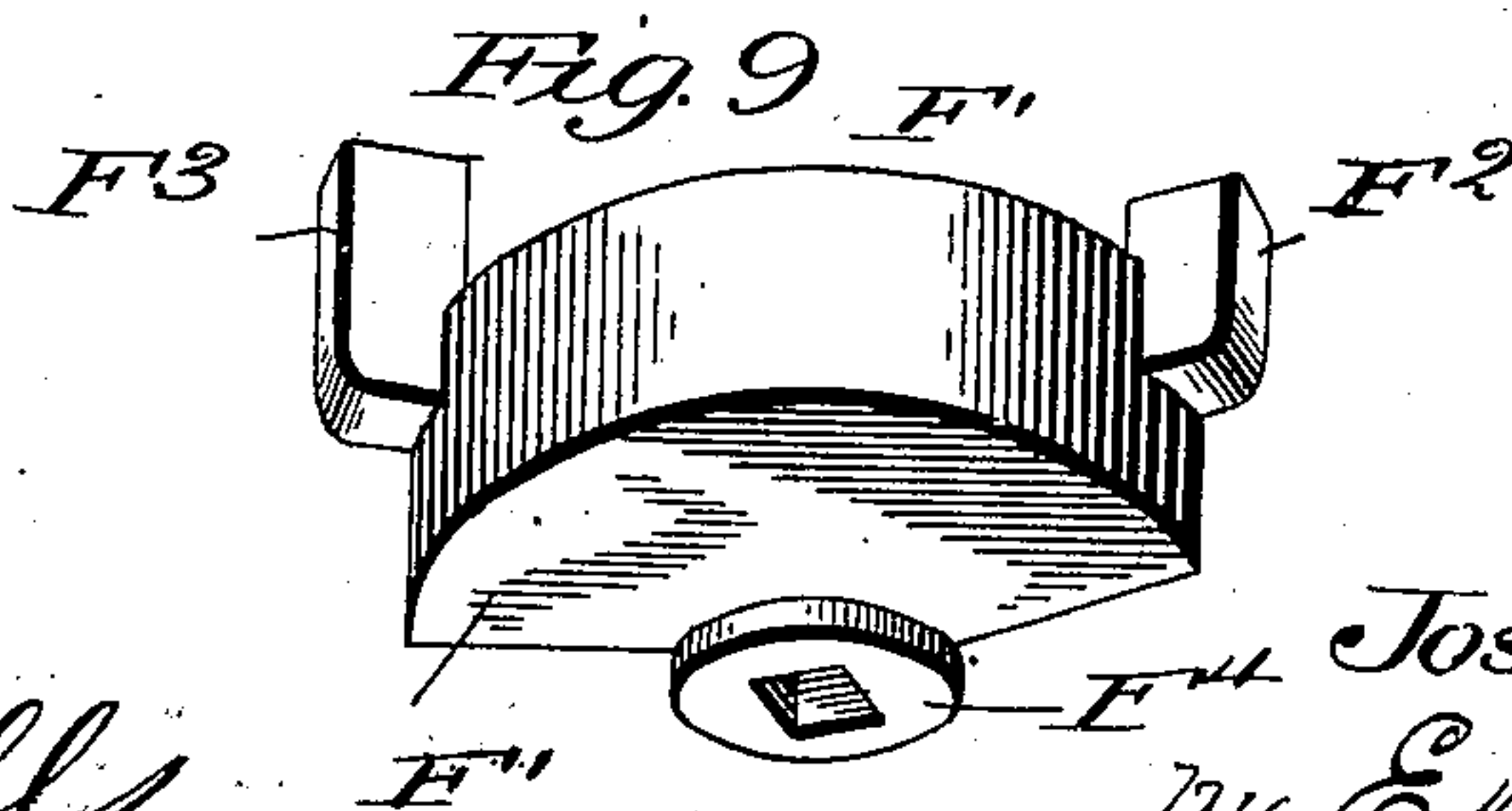


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOSEPH REDFERN, OF WILMERDING, PENNSYLVANIA.

TRAIN-PIPE COUPLING.

SPECIFICATION forming part of Letters Patent No. 629,469, dated July 25, 1899.

Application filed November 3, 1898. Serial No. 695,410. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH REDFERN, a citizen of the United States, residing at Wilmerding, in the county of Allegheny, State of Pennsylvania, have invented certain new and useful Improvements in Train-Pipe Couplings, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to train-pipe couplings, and particularly to a combined automatic air-brake coupling and angle-cock in which the valve will be closed when the coupling is disconnected and similarly opened 15 when the coupling is properly assembled, thus dispensing with the usual angle-cock located on the train-pipe.

The invention has for its object to provide an improved construction of valve in the 20 coupling-body, whereby a movement of the coupling is permitted without altering the position of the valve so as to affect the passage through the train-pipes.

The invention also has for an object to present a construction adapted to operate in connection with the ordinary forms of air-pipe couplings, whereby the valve will be automatically opened and closed as the pipes are connected and disconnected, respectively, and 30 in the event of a break of the coupling the valve will be left open, so as to apply the brakes, and thus inform the engineer of the accident.

35 The invention has for a further object to improve the details of construction of the valve and its operating-lever, whereby the same will be positively operated.

40 Other objects and advantages of the invention will hereinafter appear, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a side elevation of two ordinary air-pipe couplings with the parts in the position first assumed when 45 coupling or connecting the same together. Fig. 2 is a similar view with the parts in the completed coupled position. Fig. 3 is a horizontal section of one of the coupler-bodies. Fig. 4 is an end view of a coupler-body. Fig. 50 5 is a top view of a similar part. Figs. 6, 7, 8, and 9 are detail perspectives of the pack-

ing-gasket, valve, valve-casing, and valve-lever, respectively.

Like letters of reference indicate like parts throughout the several figures of the drawings. 55

The invention has been shown as applied to the ordinary form of air-brake hose-coupling; but it can be applied to any desired or preferred form of coupling-body, as will be 60 hereinafter seen. In the form illustrated the head or body A is provided with the usual wing A', lip A², and nipple or neck A³, to which the flexible hose is connected. Within the body A of each coupler a valve-casing B, 65 provided with ports B', is located, and within this casing a valve C, provided with ports C', is snugly fitted, said valve having a stem C² and wrench-hold C³.

Above the valve and extending beyond the 70 inner face of the head an elastic packing-gasket D is seated within a slightly-dove-tailed recess D², formed in the upper part of the valve-case B, and is held in position by a split metallic ring D'. Surrounding the stem 75 C² of said valve C and seated within a recess A⁴ of the coupler-body A is an expanding spring E, which bears at one end against the body of the coupler and at the opposite end against the inner face of a valve-lever F, 80 which is applied to the wrench-hold C³ of the valve C.

The valve-lever F is provided with an inwardly-extending flange F', which extends circumferentially of the face or end of the 85 coupler and is provided with a short lug F² and a longer lug F³. The difference in length, however, is not essential to the operation, but materially assists the operator by acting as a guide in properly assembling the parts. The 90 lever F is also provided with an angular socket F⁴, adapted to fit the wrench-hold C³ before mentioned, and a suitable cotteral-pin F⁵ is passed through these parts to connect the same together. 95

The outer face of each coupler-body A is provided with oppositely-disposed lugs or projections—as, for instance, the lug G, against which the lever F should rest when the valve is completely open, and the lug G', against 100 which the edge of the valve-lever will bear when the valve is closed.

In assembling this coupling the members thereof are held in a slightly-upward position, as usual, and the lip upon one member engaged behind the wing upon the other. At this time the ports in the valve C will all be closed and the lugs F^3 are upon the under or lower side of the coupling. The continued downward movement of the members toward a straight line will bring the lug F^2 upon the lever F into contact with the edge of a wing, whereby the continued movement into an inclined position below a horizontal line will shift the lever F and open the ports of the valve, establishing communication between the connecting train-pipes. At this time the parts are in the position shown in Fig. 2, with the upper edge of the valve-lever F in contact with the lug G, and the lug G' is at a distance from the other or lower edge of the valve-lever F. This is due to the fact that these lugs are not diametrically opposite—that is, the face of the lug G is on a line through the center of the valve-stem, while the lug G' is slightly in advance of such a line. These stop-lugs limit the movement of the valve-lever in its opposite directions and determine positively when the parts are fully opened and closed.

It will be seen from Fig. 2 that the longer lugs F^3 are each at a distance from the lower edge of the wings A' . This is to permit a movement of the members without affecting the valve-lever—as, for instance, when the distance between the cars of a train is increased incident to running around a curve or other cause. Such strain upon the flexible members of the train-pipe causes the same to rise from their usually depressed position into substantially a straight line, and it is essential that this movement should occur without affecting the flow of air through the train system. A further important advantage of this feature of construction is that in the event of breakage of the flexible connection or other parts the valves will be left open and the brakes consequently immediately applied, when the air is allowed to escape from the coupling through any pulling apart or breaking of the same, which may occur from any accidental cause. When an employee desires to disconnect the coupling, the bodies A are raised into a position above a horizontal line, as shown in Fig. 1, when the lugs F^3 engage the lower edge of the wings A' , which shifts the valves, so that when the coupling is separated the valve-ports are tightly closed. When this position of the parts is reached, the lug G' will bear against the lower wall of the lever F.

In the application similar coupling-bodies have been illustrated and each of the same provided with the valve described; but the construction permits the use of a coupling-head not having a valve in its body, as the lever F is adapted to be operated by the usual wing present upon train-pipe couplings of this general character. It can also be used

to equal advantage in that type of coupling-head which is provided with a cross-pin extending from the wing to the body, as illustrated in dotted lines on Fig. 5. The coupling is thus intended and adapted for application and connection with a similar coupling or with any of the usual forms of air-brake couplings.

It is obvious that the configuration and construction of the details of this invention may be altered without affecting the spirit of the invention as defined by the appended claims.

Having described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with one member of a coupling, of a valve and valve-operating device adapted to be operated by an adjacent coupling member and constructed and arranged to permit movement of the adjacent member without operating the valve when the members move vertically into substantially the horizontal plane of their train-pipe connections; substantially as specified.

2. The combination with one member of a coupling, of a valve and valve-operating device extending into the path of an adjacent coupling member and constructed and arranged to permit movement of the adjacent member without operating the valve when the members move vertically into substantially the horizontal plane of their train-pipe connections; substantially as specified.

3. The combination with one member of a coupling, of a valve, a valve-operating device having projections extending into the path of an adjacent coupling member, said projections being spaced to permit a movement of the adjacent member without operating the valve when the members move vertically into substantially the horizontal plane of their train-pipe connections; substantially as specified.

4. The combination with a coupling member, of a valve carried thereby, a valve-operating device provided with projections extending into the path of a wing upon an adjacent coupling member, said projections being spaced a greater distance apart than the length of said wing to permit said members to move vertically into substantially the horizontal plane of their train-pipe connections without operating the valve; substantially as specified.

5. The combination with a coupling member, of a valve carried thereby, a valve-operating device provided with projections extending into the path of a wing upon an adjacent coupling member, said projections being spaced a greater distance apart than the length of said wing, and stop-lugs located to limit the movement of said operating device; substantially as specified.

6. The combination with a coupling member, of a valve, a valve-operating device provided with a laterally-extending flange circumferential to the coupling, and projections

from the opposite ends of said flange extending into the path of a wing carried by an adjacent coupling member, said projections being spaced a greater distance apart than the length of said wing to permit said members to move vertically into substantially the horizontal plane of their train-pipe connections without operating the valve; substantially as specified.

10 7. In a coupling member, the combination of a valve-seat provided with ports, a valve located upon said seat and having a stem projecting through the coupling member, a spring surrounding said stem and bearing upon the coupling member, a valve-operating lever connected to the outer end of said stem and extending into the path of an adjacent coupling member; substantially as specified.

20 8. In a coupling member, the combination of a valve-seat provided with ports, a valve located upon said seat and having a stem projecting through the coupling member, a spring surrounding said stem and bearing upon the coupling member, a valve-operating lever connected to the outer end of said stem and extending into the path of an adjacent coupling member, a packing-gasket at the inner face of said valve-casing, and stop-lugs upon the outer face of the coupling member; substantially as specified.

30 9. In a coupling member, the combination of a valve-seat provided with ports, a valve located upon said seat and having a stem projecting through the coupling member, a spring surrounding said stem and bearing upon the coupling member, an adjacent coupling member provided with a wing, and a valve-operating device provided with projections spaced a greater distance apart than the longitudinal area of said wing; substantially as specified.

40 10. In a coupling member, the combination of a valve-seat provided with ports, a valve

located upon said seat and having a stem projecting through the coupling member, a spring surrounding said stem and bearing upon the coupling member, an adjacent coupling member provided with a wing, and a valve-operating device provided with projections of different lengths and spaced a greater distance apart than the longitudinal area of said wing; substantially as specified.

11. The combination of a coupling member, a valve-casing located therein, a valve provided with ports and located within said casing, a valve-stem extending through the coupling member, a tension-spring to exert a pressure upon said stem, a valve-operating lever provided with a lateral flange, inwardly-extending projections from the opposite ends of said flange, and an adjacent coupling member provided with a wing of less longitudinal area than the distance between said projections; substantially as specified.

12. The combination of a coupling member, a valve-casing located therein, a valve provided with ports and located within said casing, a valve-stem extending through the coupling member, a tension-spring to exert a pressure upon said stem, a valve-operating lever provided with a lateral flange inwardly-extending projections from the opposite edge of said flange, an adjacent coupling member provided with a wing of less longitudinal area than the distance between said projections, a packing located in a recess provided in said valve-casing, and oppositely-disposed stop-lugs to limit the movement of said valve-lever; substantially as specified.

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

JOSEPH REDFERN.

Witnesses:

ISAAC LLOYD,
DAVID JAMES.