

No. 741,970.

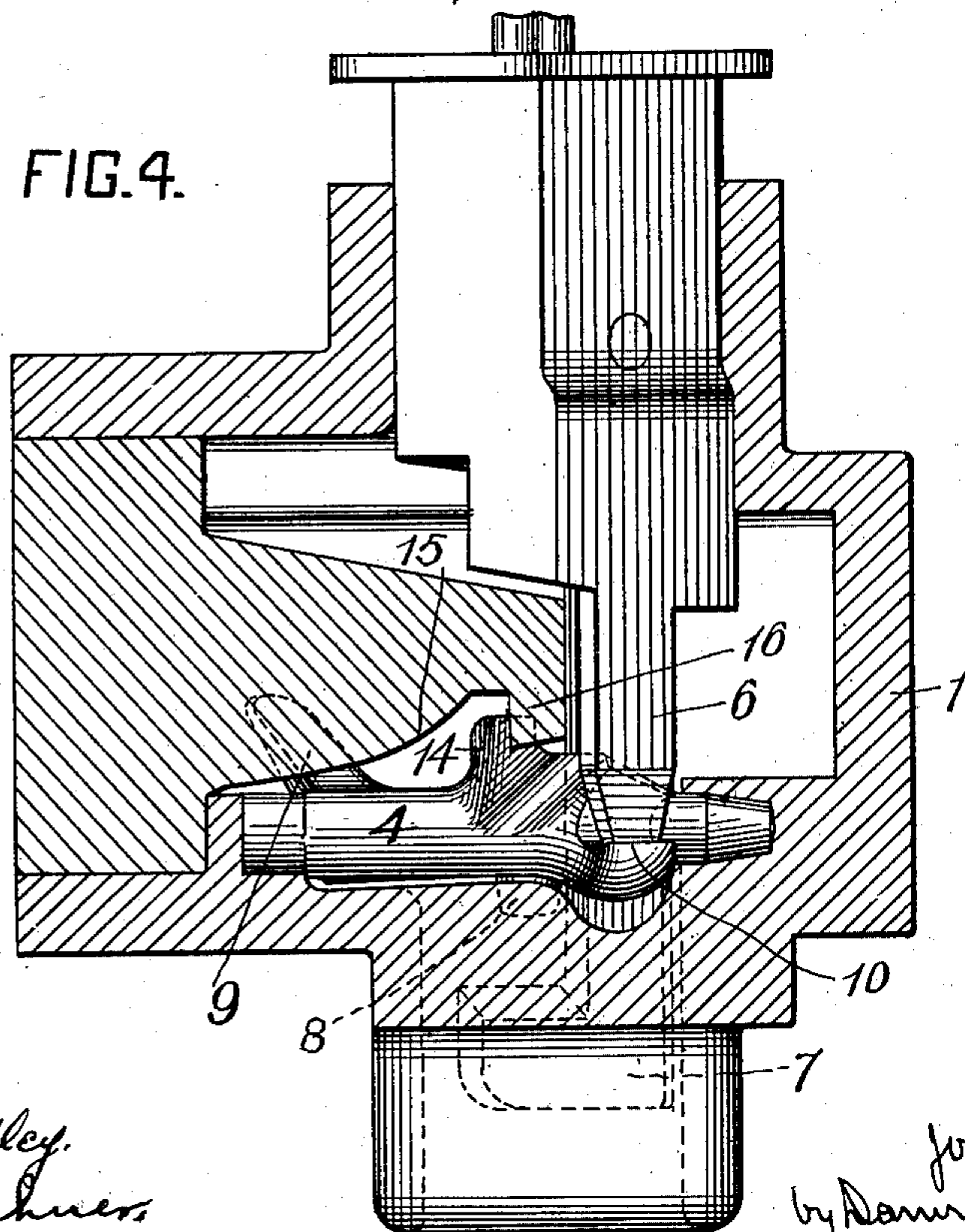
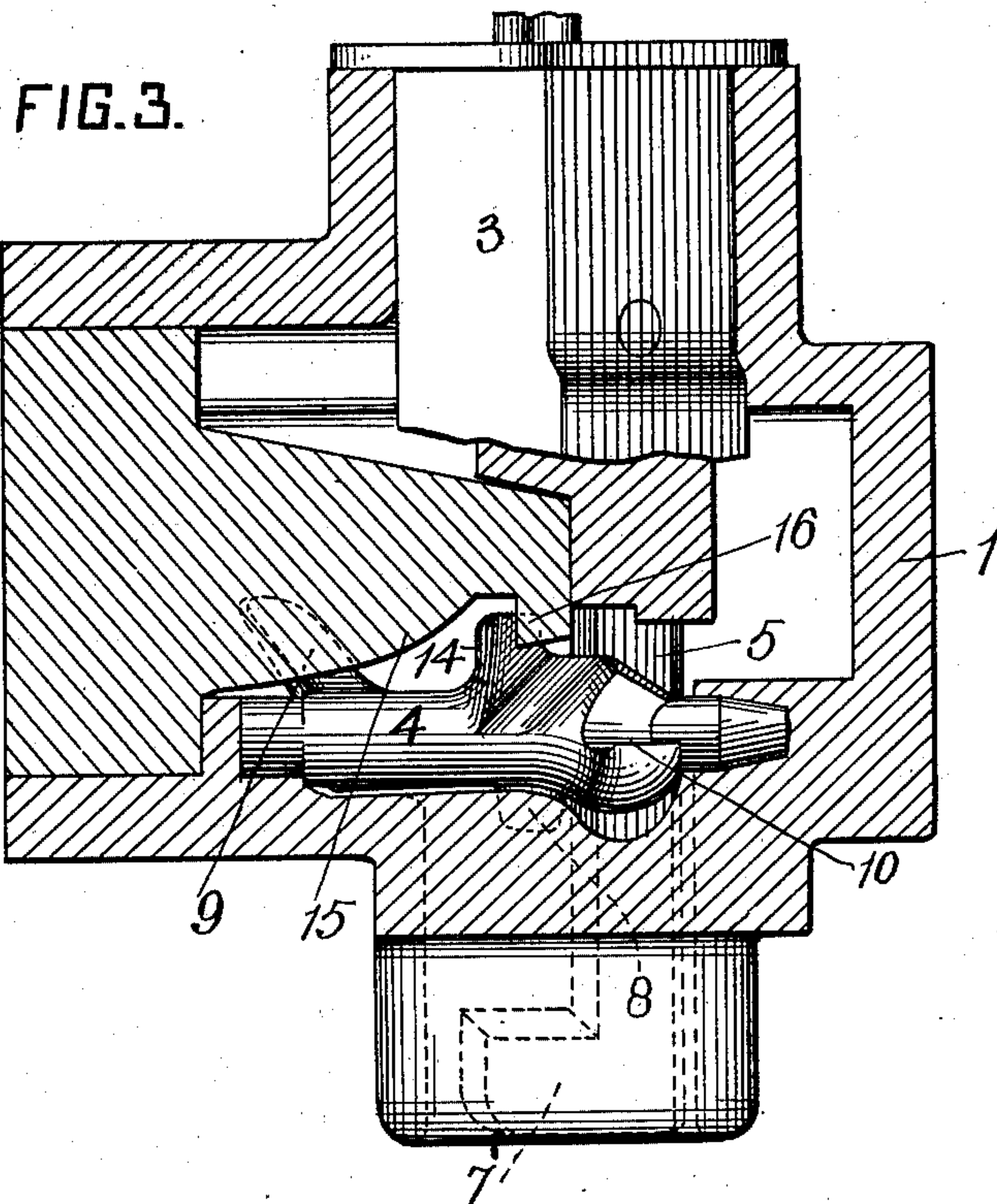
PATENTED OCT. 20, 1903.

J. KELSO.
CAR COUPLING.

APPLICATION FILED DEC. 3, 1902.

NO MODEL.

6 SHEETS—SHEET 2.



WITNESSES:

Herbert Bradley.
Fred Schuchner.

INVENTOR

Joseph Kelso
by Dennis S. Wolcott Att'y.

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6 SHEETS—SHEET 3.

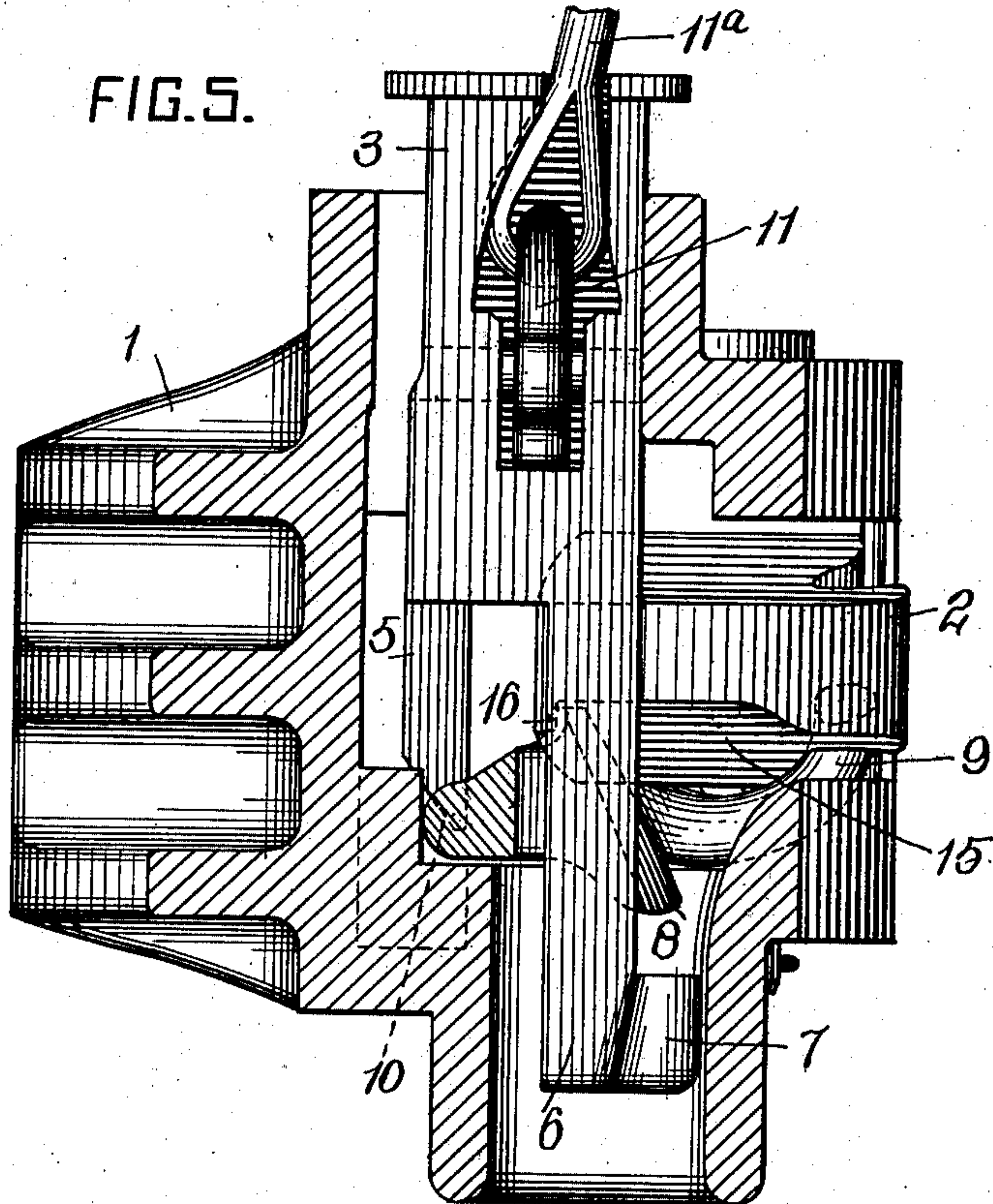


FIG. 6.

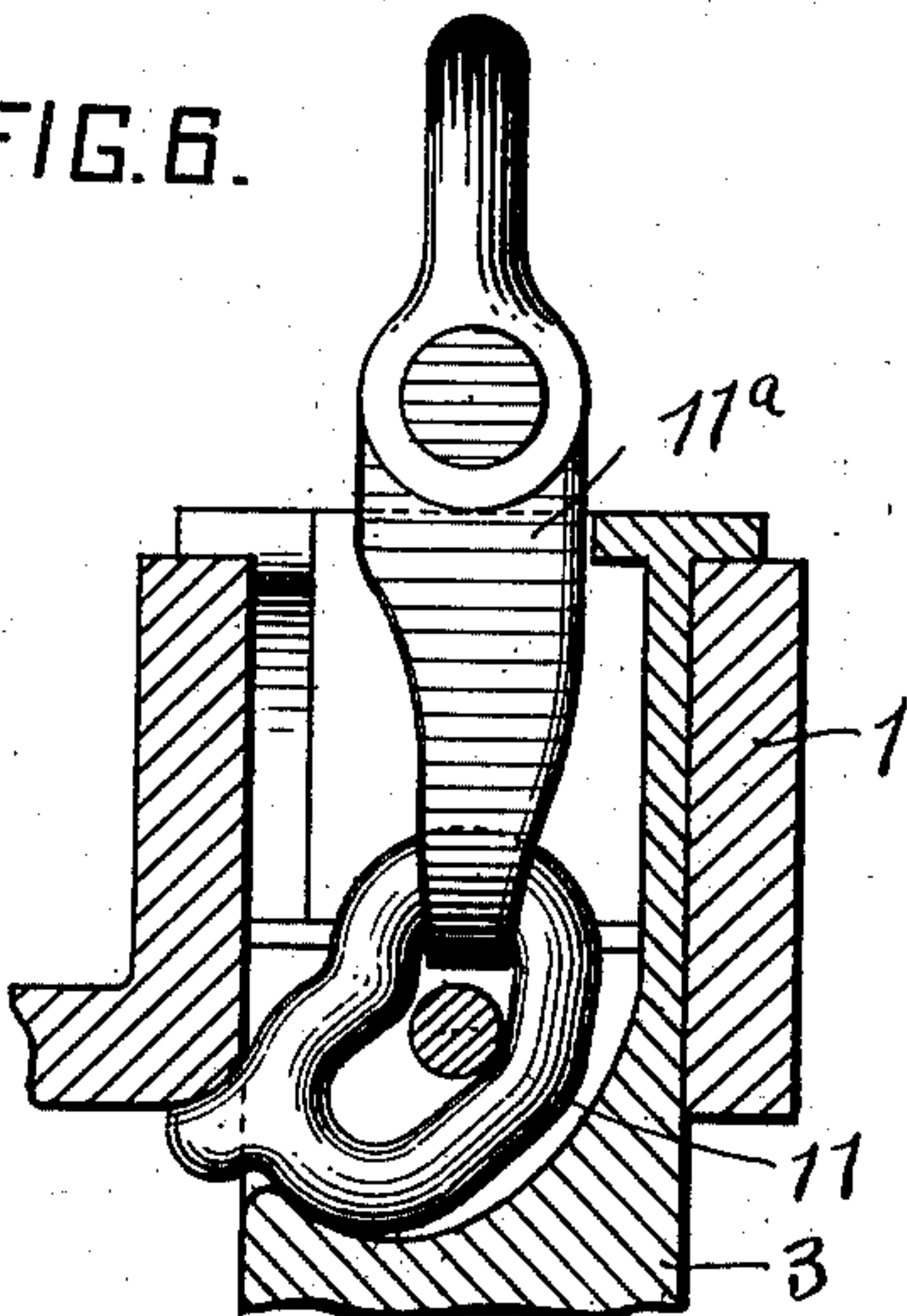
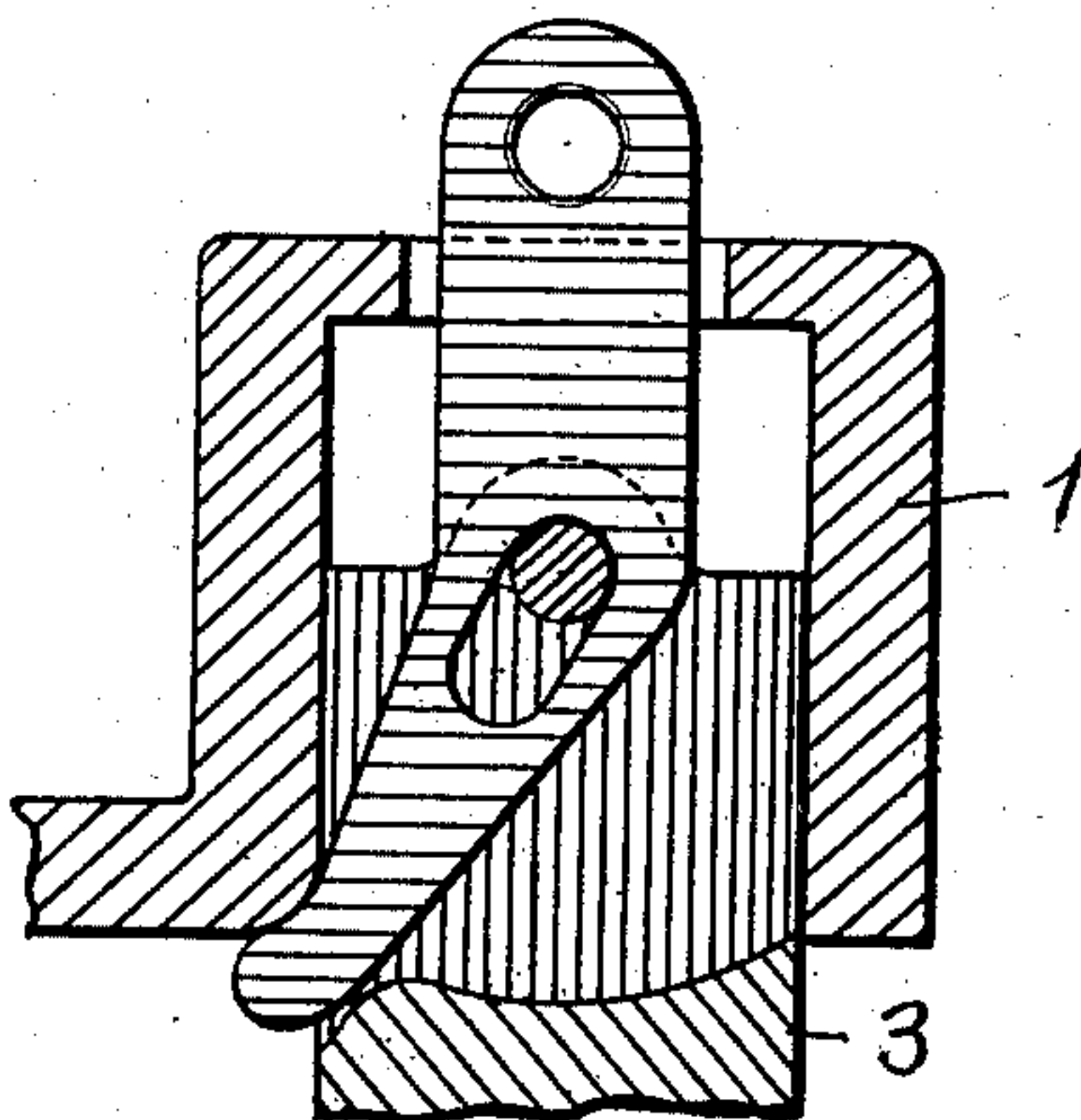


FIG. 7.



WITNESSES:

Herbert Bradley.
Fred Kirchner.

INVENTOR

Joseph Kelso
by Dennis S. Wolcott Att'y.

No. 741,970.

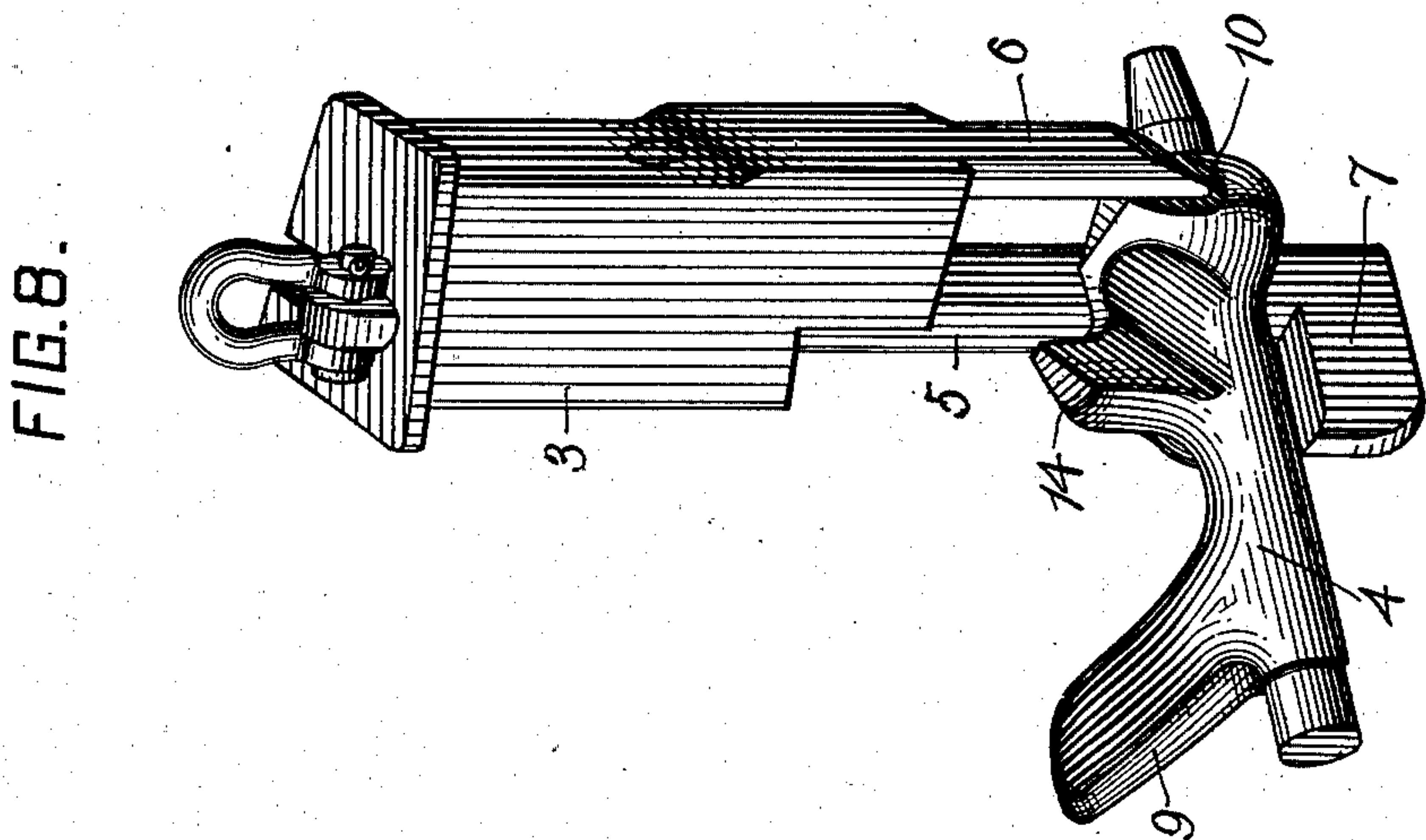
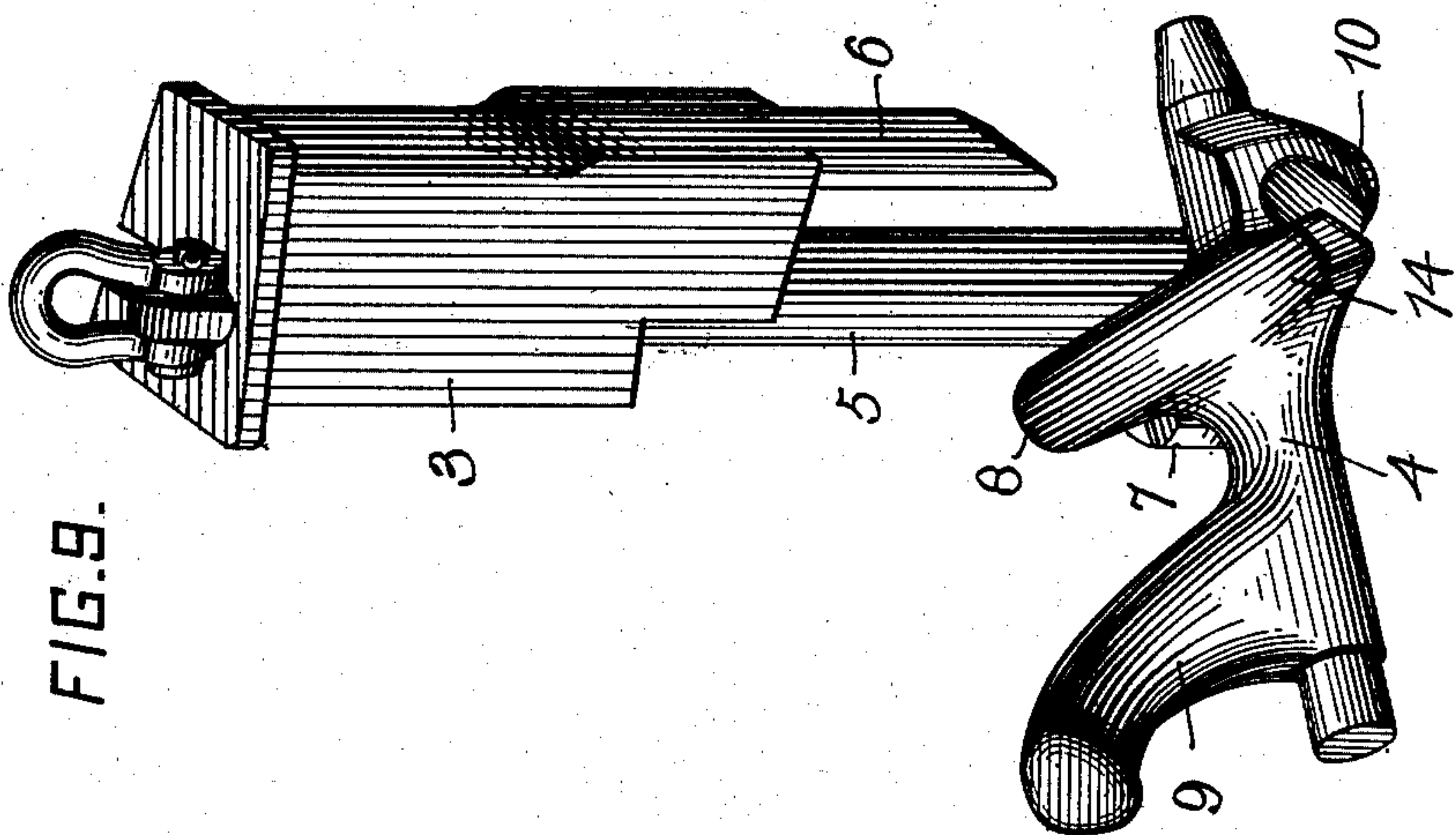
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NO MODEL.

6 SHEETS—SHEET 4.



WITNESSES:
Herbert Bradley.
Fred Kirchner

INVENTOR
Joseph Kelso
by *Darius B. Wolcott* Att'y.

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NO MODEL.

6 SHEETS—SHEET 5.

FIG. 10.

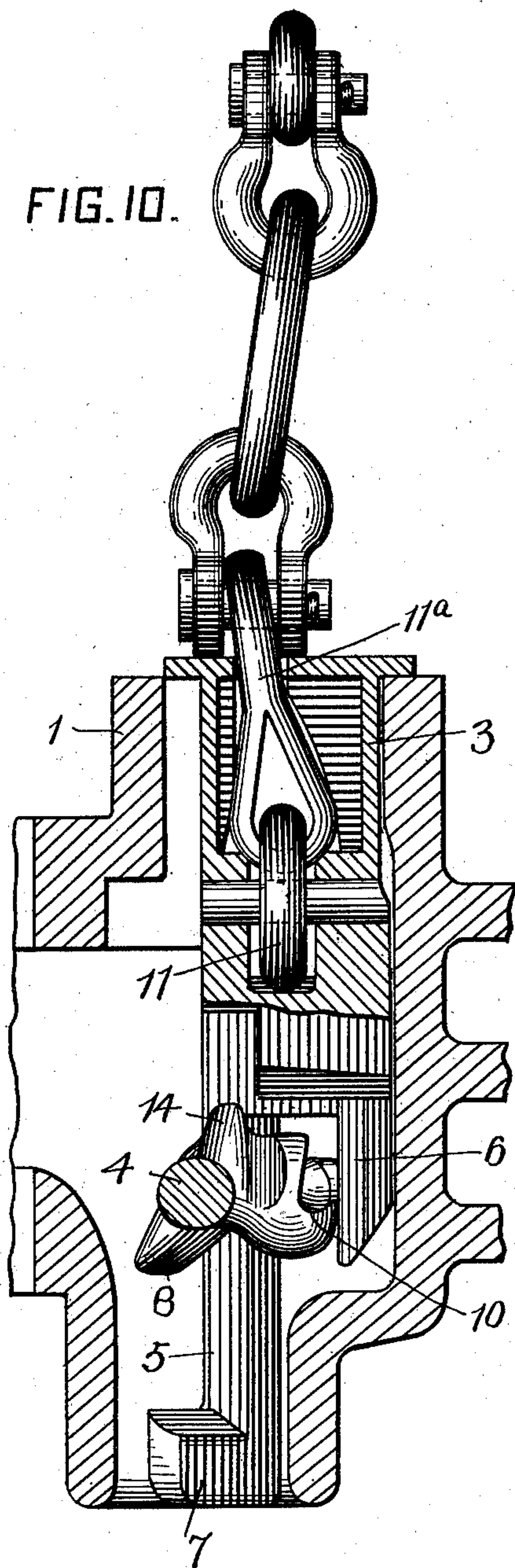
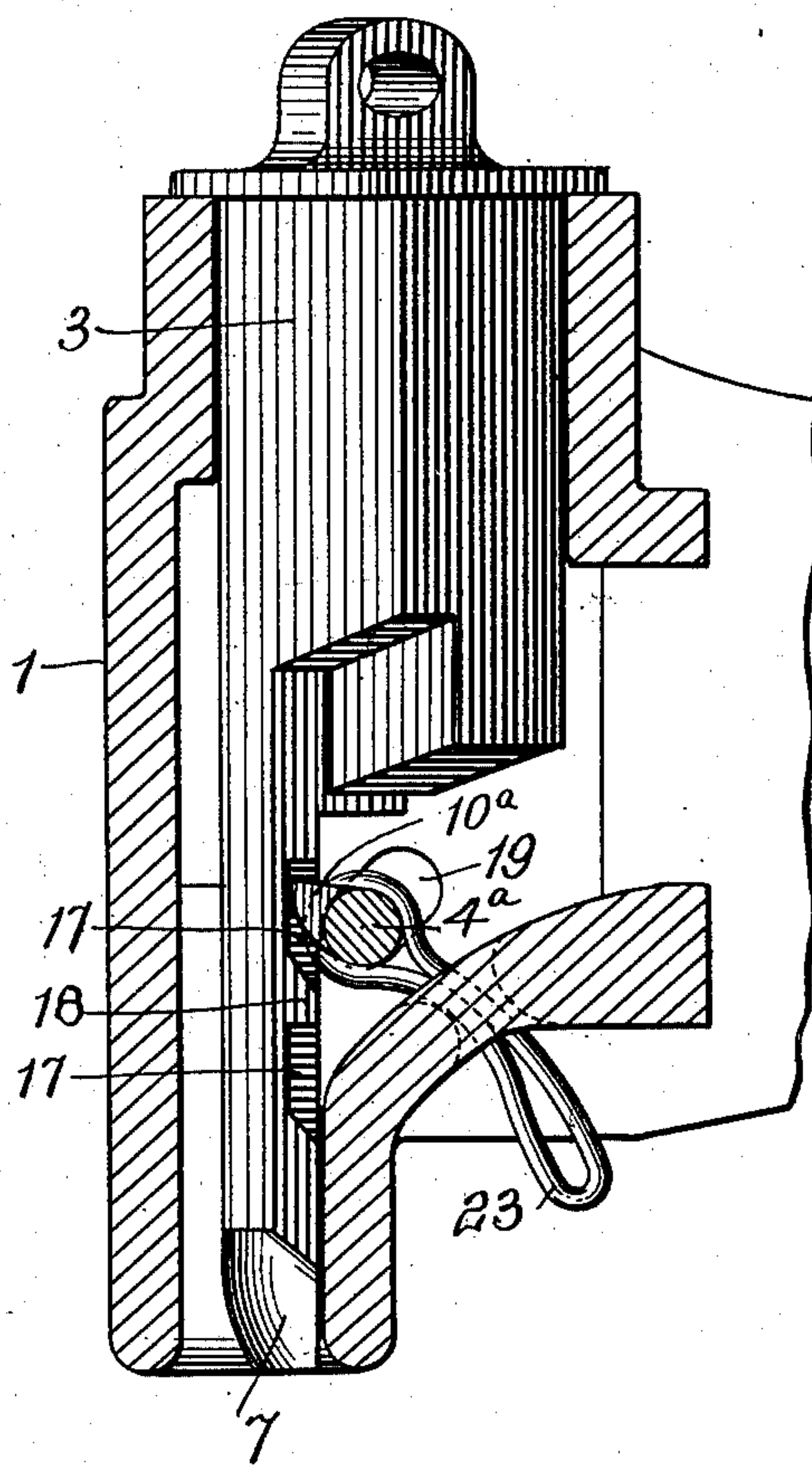


FIG. 11.



WITNESSES:

Herbert Bradley.
Fred Storchner.

INVENTOR

Joseph Kelso
by *Dennis S. Wolcott* Att'y.

No. 741,970.

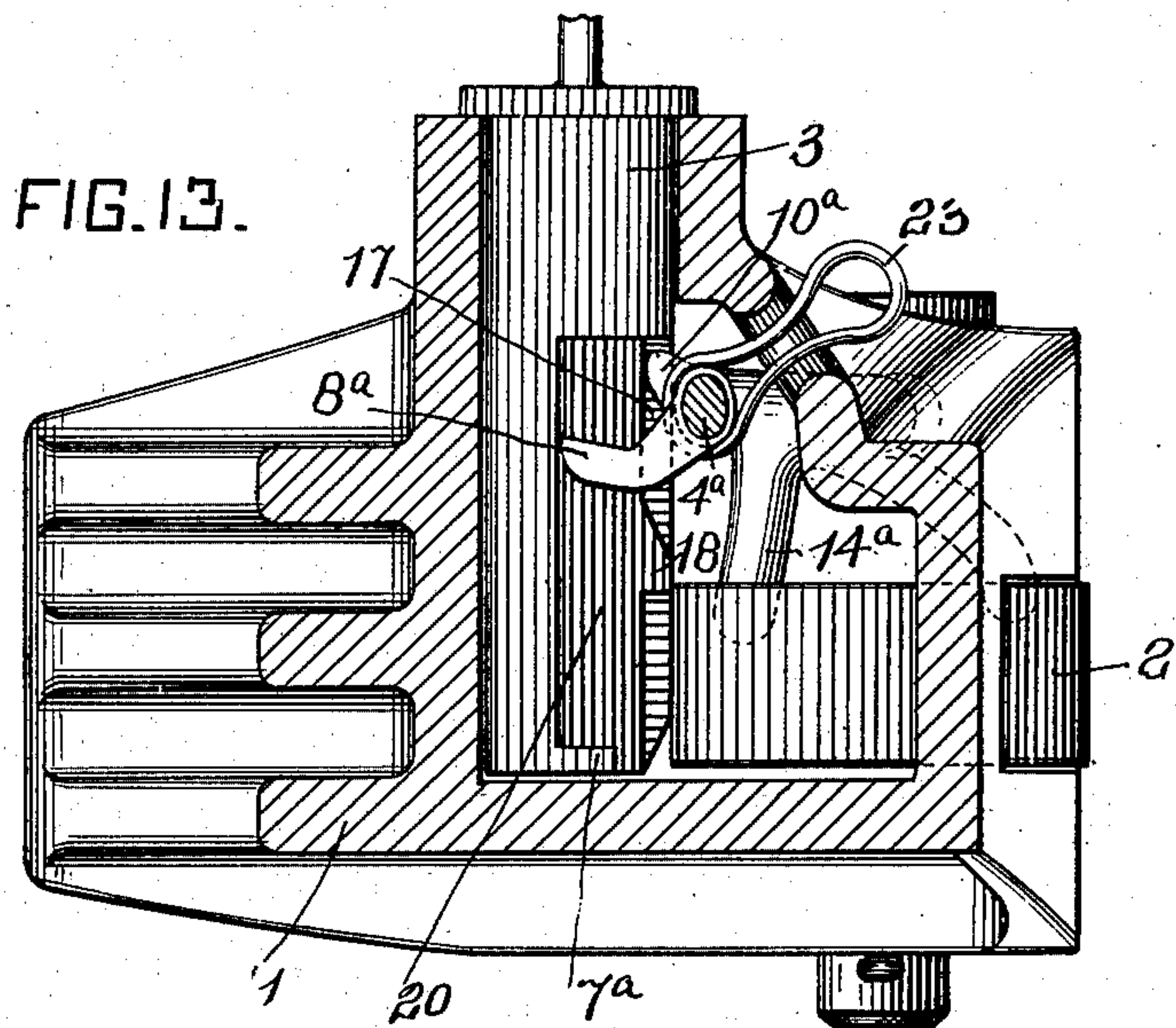
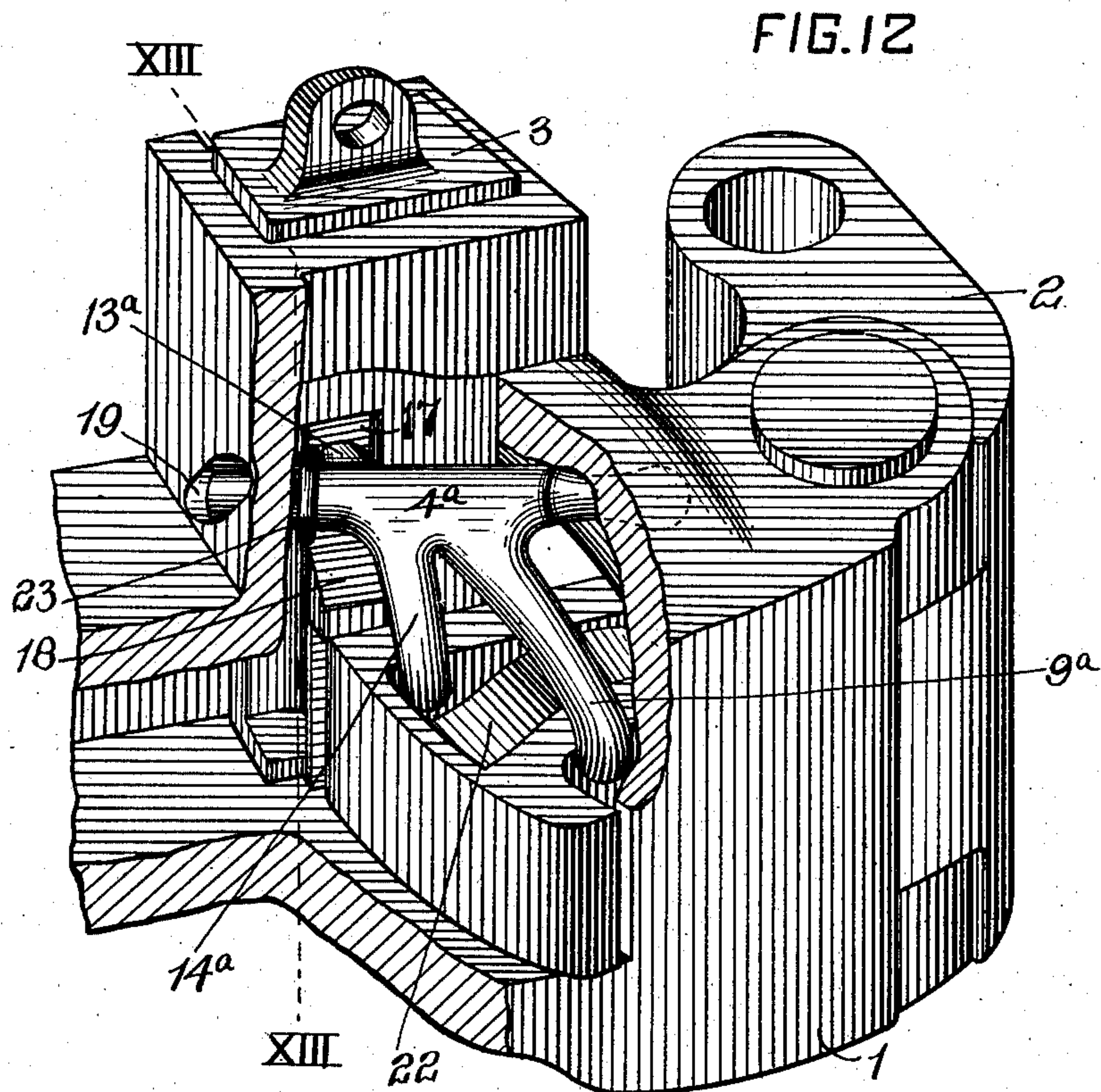
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J. KELSO.
CAR COUPLING.

APPLICATION FILED DEC. 3, 1902.

NO MODEL.

6 SHEETS—SHEET 6.



WITNESSES:
Herbert Bradley.
Fred Kirchner.

INVENTOR
Joseph Kelso
by Saml B. Wolcott

UNITED STATES PATENT OFFICE.

JOSEPH KELSO, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR TO THE
MCCONWAY & TORLEY COMPANY, OF PITTSBURG, PENNSYLVANIA,
A CORPORATION OF PENNSYLVANIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 741,970, dated October 20, 1903.

Application filed December 3, 1902. Serial No. 133,709. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH KELSO, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented or discovered a certain new and useful Improvement in Car-Couplers, of which improvement the following is a specification.

The invention described herein relates to certain improvements in locking and unlocking mechanism for car-couplers of the Master Car-Builders' type, and has for its object a construction wherein the locking-block can be raised to and supported in unlocked position while the knuckle is closed and by a further movement of the locking-block the knuckle can be opened.

It is a further object of the invention to provide for the release of the locking-block from its preliminary support either by the opening of the knuckle, a complete upward movement of the locking-block, or by means independent of the knuckle and locking-pin.

The invention is hereinafter more fully described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a plan view of a coupler and a portion of the end of the car, such coupler embodying my improvements. Fig. 2 is a sectional plan view on a plane coinciding with the lower side of the knuckle of the coupler. Fig. 3 is a sectional elevation on a plane indicated by the line III III, Fig. 2. Fig. 4 is a view on the same plane as Fig. 3 looking in the opposite direction. Fig. 5 is a sectional elevation on the plane indicated by the line V V, Fig. 1, looking in the direction of the arrow *a*. Figs. 6 and 7 are sectional detail views, on an enlarged scale, of the locking-pin and adjacent parts of the coupler, illustrating two different forms of modifications of the operating devices of the pin. Figs. 8 and 9 are perspective views of the locking-pin and of the pin-supporting and knuckle-opening devices, showing the pin partly raised in its preliminary unlocking position in Fig. 8 and wholly raised to effect an opening of the knuckle in Fig. 9. Fig. 10 is a sectional elevation on a plane indicated by the line X X, Fig. 1, look-

ing in the direction of the arrow *b*. Fig. 11 is a view, partly in section and partly in elevation, illustrating a modification of the improvements shown in Figs. 1 to 10 and illustrating a manner of releasing the pin from its preliminary unlocking position. Fig. 12 is a perspective view, parts being shown in section and parts in elevation, of a modification of the constructions shown in Figs. 1 to 10, inclusive. Fig. 13 is a sectional elevation on a plane indicated by the line XIII XIII, Fig. 12.

In the practice of my invention the coupler as regards the head 1, knuckle 2, and locking-pin 3 is constructed in the usual or any suitable manner except as regards features hereinafter specifically referred to. As clearly shown in Figs. 2 to 10, inclusive, a shaft 4 has its journals mounted in suitable bearings in the head 1, so that said shaft will lie wholly below the plane of movement of the tail of the knuckle. As shown in Fig. 2, this shaft lies diagonally across the coupler-head and below the plane of movement of the tail of the knuckle and passes between the lines of movement of extensions or stems 5 and 6 of the locking-pin 3. The stem 5 of the locking-pin is provided at its lower end with an offset or shoulder 7, adapted when the pin is raised to engage an arm 8 on the shaft 4 and rotate said shaft in a direction to cause the arm 9 on the shaft to bear against the rear side of the tail of the knuckle and force the latter to open position. The stem 5 is so proportioned as to its length below the body or locking portion of the pin 3 as not to engage the arm 8 until such body portion is raised above the plane of movement of the tail of the knuckle, so that the latter will be unlocked before the arm 9 comes into operation to open the knuckle. The stem 6 is made of such a length that it will rest upon a shoulder or abutment 10 on the shaft 4 when the body portion of the locking-pin is raised above the plane of movement of the tail of the knuckle, and thereby support the locking-pin in such raised or unlocked position. The shaft 4 is prevented from rotating with the weight of the locking-pin by the bearing of the arm 9 against the rear side of the tail of the knuckle,

as will be seen by reference to Figs. 2, 3, and 4. It will be understood that on the first movement of the shaft 4 by the engagement of the shoulder 7 on the stem 5 with the arm 8 on the shaft the shoulder or abutment 10 will be moved away from under the stem 6, allowing the pin to drop upon the tail of the knuckle, which by the movement of the shaft, as stated, is shifted sufficiently far to receive the locking-pin before the stem is released from the abutment.

In order to insure the engagement of the stem 6 with the abutment 10 on the shaft 4 when the pin is raised, the link 11 is pivotally connected to the pin at one side of the center of the pin, as clearly shown in Figs. 5 and 10, and said link is loosely connected by any suitable means known in the art, as a link or clevis 11^a, to the arm 12, projecting from the shaft 13 on the car, whereby the unlocking of the coupler is effected. By reason of this construction the center of gravity is at one side of the point of connection of the link 11 with the pin, so that the lower end of the pin tends to swing to the left in Figs. 5 and 10 when raised and its stem 6 to engage the abutment 10. It will be observed that the locking-pin is made somewhat smaller in the direction of its movement toward shaft 4, above stated, than the opening in the coupler-head, so as to permit of this lateral swing, whereby the stem 6 is caused to engage the abutment on the shaft 4.

In order that the stem 6 may be released from the abutment or the latter shifted from under the stem without a complete lifting of the locking-pin, as above described, a shoulder or finger 14 is formed on the shaft 4, projecting up into a groove 15 in the under side of the tail of the knuckle, and engages when said knuckle is swung to open position a wall or abutment 16 at the end of such groove or recess, whereby to cause such a rotation of the shaft 4 as to move the abutment out from under the stem 6 and permit the locking-pin to drop onto the tail of the knuckle.

From the foregoing it will be understood that the shaft 4 may be rotated either by the movement of the tail of the knuckle or by the upward movement of the locking-pin to shift the abutment 10 from under the stem 6 and permit the locking-pin to drop upon the tail of the knuckle.

In lieu of arranging the knuckle-opening and pin-supporting shaft 4 below the plane of movement of the tail of the knuckle it may be arranged above such plane of movement, as clearly shown in Figs. 12 and 13. In this construction the shaft 4^a is provided with an arm 9^a, extending backwardly and adapted to bear upon the rear wall of the tail of the knuckle, and an arm 14^a, projecting down into a groove or recess in the upper face of the tail of the knuckle and adapted to be shifted by abutments forming the ends of such groove or recess. The supporting-abutment 10^a on

the shaft 4^a projects into a groove 17 in the side of the locking-pin when the latter is in operative position, and when said pin is raised an inclined shoulder 18 bears against the abutment and raises the rear end of the shaft 4^a, permitting the shoulder to slide past the abutment 10^a and to drop back again into the recess or groove 17^a below such shoulder, the rear journal of the shaft 10^a being mounted in an inclined elongated slot or bearing 19 in the coupler-head to permit of this lifting movement. When the pin has been raised so as to clear the tail of the knuckle, at which time the shoulder 18 will have passed up beyond the abutment 10^a, the latter will support the locking-pin in unlocked position by engagement with the shoulder 18. An arm 8^a on the shaft projects into a groove or recess 20 in the locking-pin, and at the end of such groove or recess is formed a shoulder 7^a, which when the pin is raised to full extent will bear against the arm 8^a and rotate the shaft 4^a, so that its arm 9^a will shift the knuckle to open position. During the movement of the knuckle to open position the arm 14^a will slide along the inclined portions 22 on the upper face of the knuckle, and thereby shift the rear end of the shaft 4^a in its inclined slot, so that the abutment 10^a will be outside of the line or plane of movement of the shoulder 18, allowing the lower end of the locking-pin to drop upon the tail of the knuckle. It will be observed that this shifting of the rear end of the shaft 4^a can be effected whether the knuckle is opened by the operation of the arm 9^a or is pulled open by hand.

In order to permit of the release of the pin from the abutment 10 or 10^a without any movement of the knuckle, an operating-rod 23 is connected to the knuckle-opening shaft and extends through an opening in the coupler-head in such manner as to permit of the lifting of the rear end of the shaft by a pull on this rod when it is desired to release the locking-pin from its preliminary position.

As shown in Fig. 11, the abutment 10^a may be employed in lieu of the abutment 10 in the construction shown in Figs. 1 to 10, inclusive. In such case the stem 6 is done away with and the groove 17 and shoulder 18 are formed in the stem 5.

In the construction shown in Figs. 12 and 13 and also in Fig. 11 no lateral movement of the locking-pin is required to effect an engagement of the pin with the supporting-abutment on the shaft, but such lateral engaging movement is imparted to the shaft itself.

In order to prevent the upward creeping of the locking pin or block, a shoulder or projection 24 is formed on the link 11, that when the locking-pin is down the shoulder or projection will extend out of the recess in the pin and under a portion of the coupler-head, as shown in Fig. 6. On the first upward

movement of the link by the arm 12 the shoulder or projection will be drawn into the pin, permitting the latter to rise. In lieu of connecting the link 11 to the arm 12 by the link and clevis 11^a a link or slotted block 25 may be employed, as shown in Fig. 7, a portion of said arm extending up through an opening in the top of the pin case or shell 26 on the coupler-head. The slot or opening in the link 11 or 25 is so shaped as to be guided in its up-and-down movements by the pin 27 connecting the link to the locking-block.

I claim herein as my invention—

1. A car-coupler of the Master Car-Builders' type having in combination therewith a knuckle-opener and means operative by the knuckle-opener for supporting the locking-block in raised position while the knuckle is in closed position.

2. A car-coupler of the Master Car-Builders' type, having in combination therewith a knuckle-opener operative by the locking-block, and means operative by the knuckle-opener for supporting the locking-block in raised position.

3. A car-coupler of the Master Car-Builders' type having in combination therewith a shaft provided with a knuckle-opening arm and a block-supporting shoulder operative to support the block while the knuckle is in closed position, and means whereby the shaft may be rotated on the upward movement of the locking-block.

4. A car-coupler of the Master Car-Builders' type having in combination therewith a shaft provided with a knuckle-opening arm, and a block-supporting shoulder, and adapted to be shifted by the opening movement of

the knuckle to release the block from its supporting-shoulder.

5. A car-coupler of the Master Car-Builders' type having in combination a shaft provided with a knuckle-opening arm, a pin-supporting block and a shifting arm lying in the path of movement of a shoulder or projection on the locking-block.

6. A car-coupler of the Master Car-Builders' type in combination with a locking block or pin, a knuckle-opener, a block-supporting shoulder, said block and shoulder arranged to be brought into engagement with each other by a lateral movement of one of said parts.

7. A car-coupler of the Master Car-Builders' type having in combination therewith a locking-block, a slotted link provided with a shoulder adapted to engage a portion of the coupler-head, a pin passing through the link and block-lifting means connected to said link.

8. In a car-coupler of the Master Car-Builders' type the combination of a swinging hook or knuckle, a locking-block mounted with freedom of lateral movement in the coupler-head, a movable block-supporting shoulder and a block-lifting device connected to said block on one side of its center of gravity whereby the locking-block will move laterally when raised to engage the supporting-shoulder, substantially as set forth.

In testimony whereof I have hereunto set my hand.

JOSEPH KELSO.

Witnesses:

DARWIN S. WOLCOTT,
F. E. GAITHER.