

No. 697,699.

Patented Apr. 15, 1902.

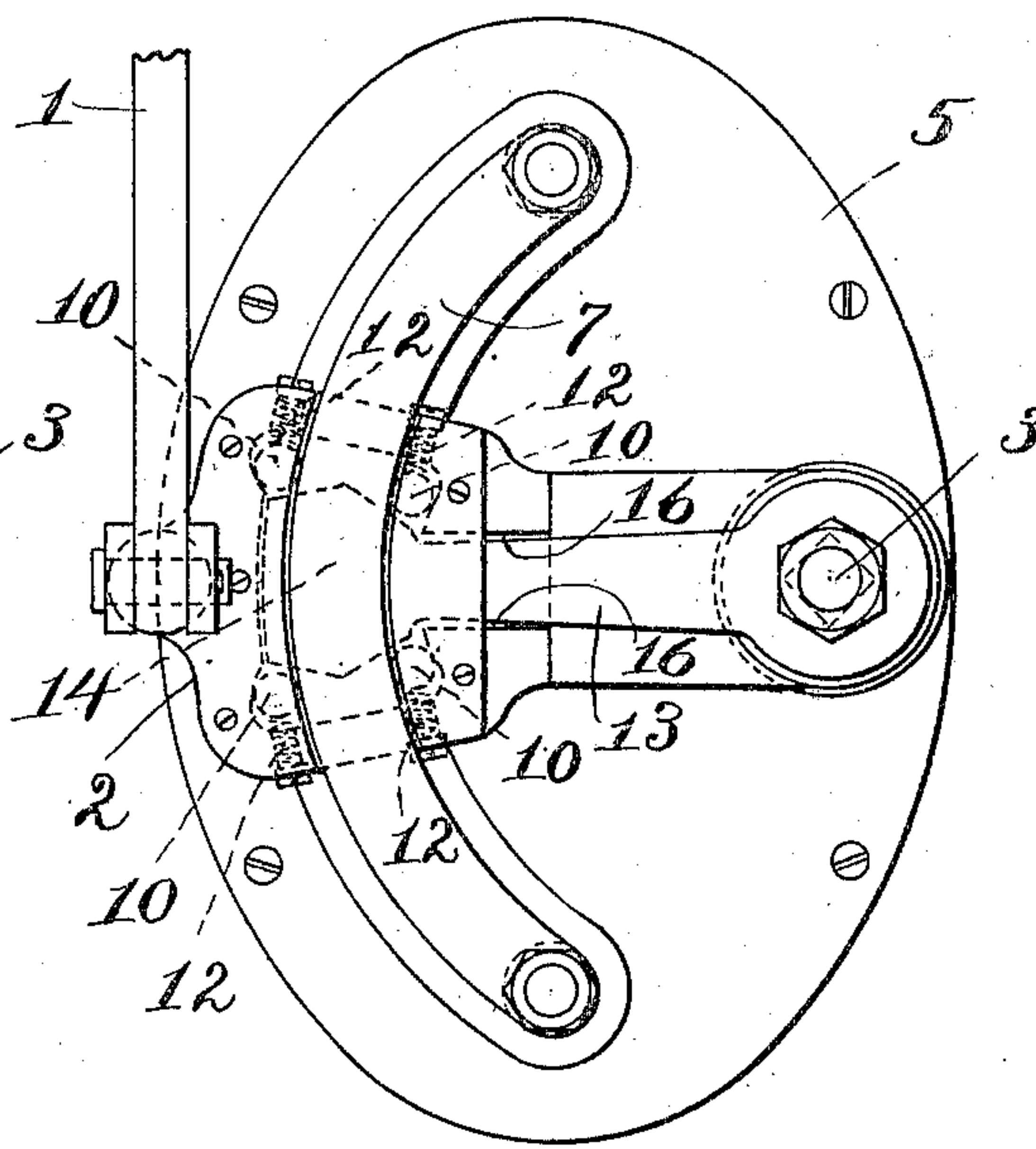
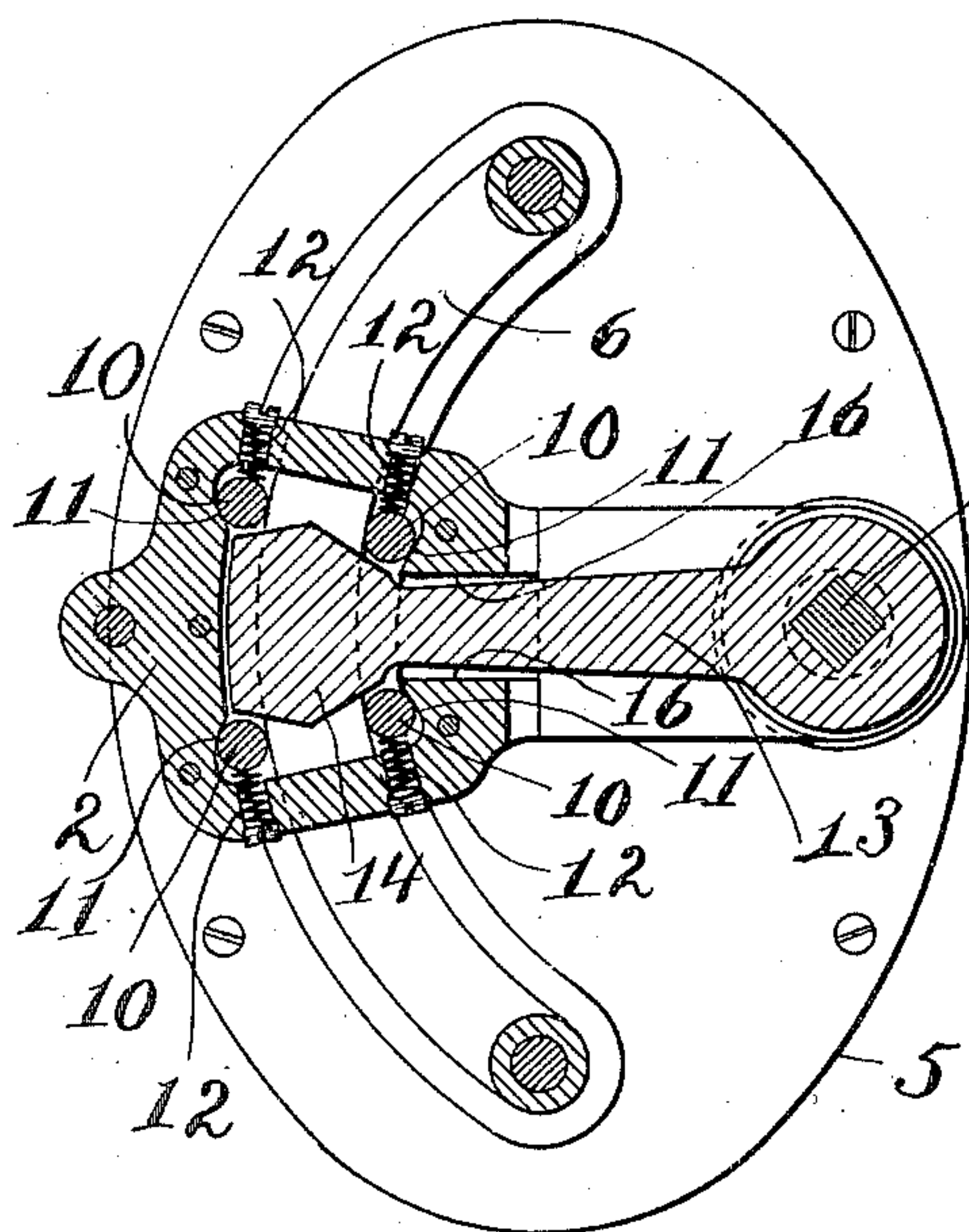
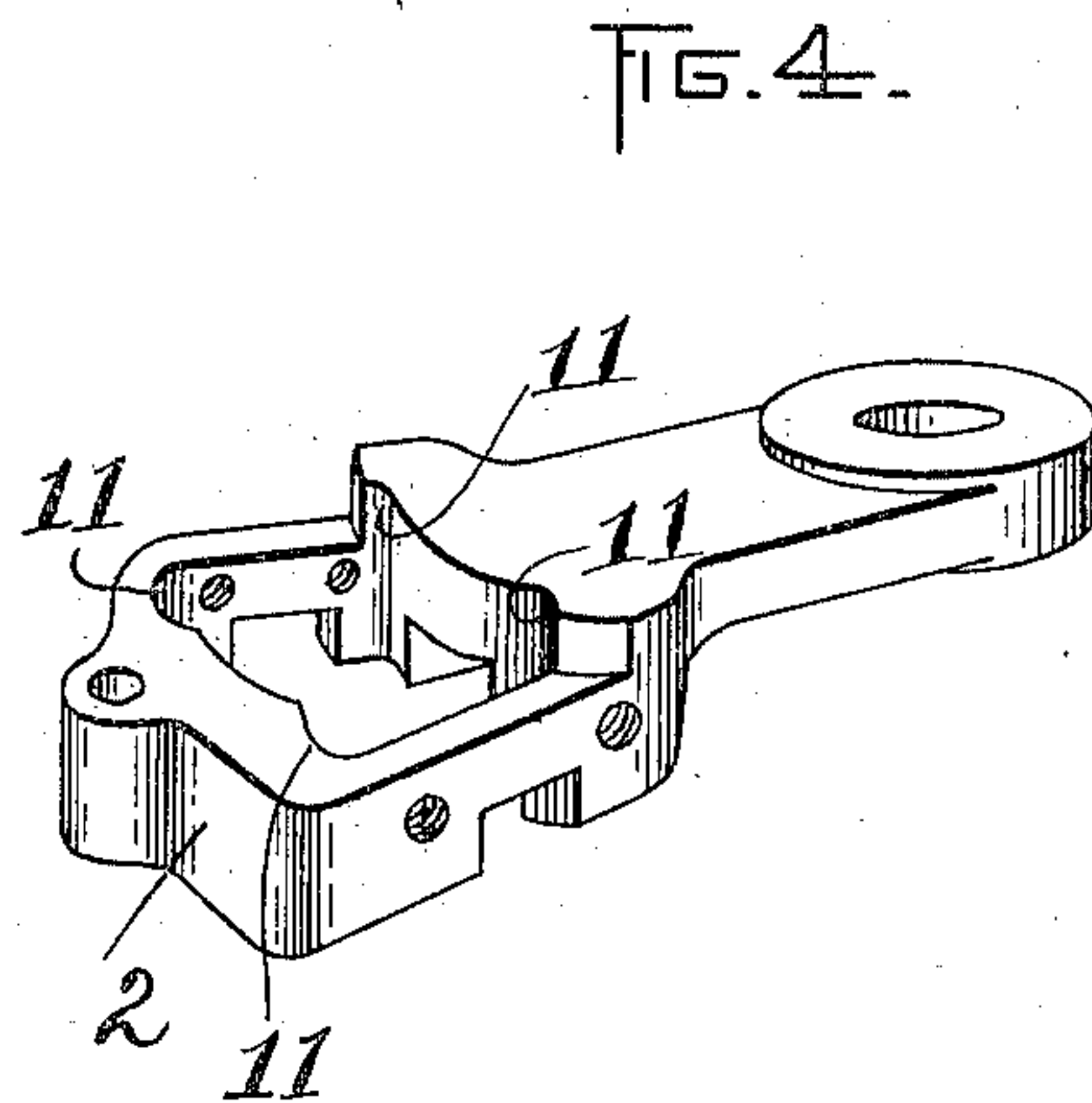
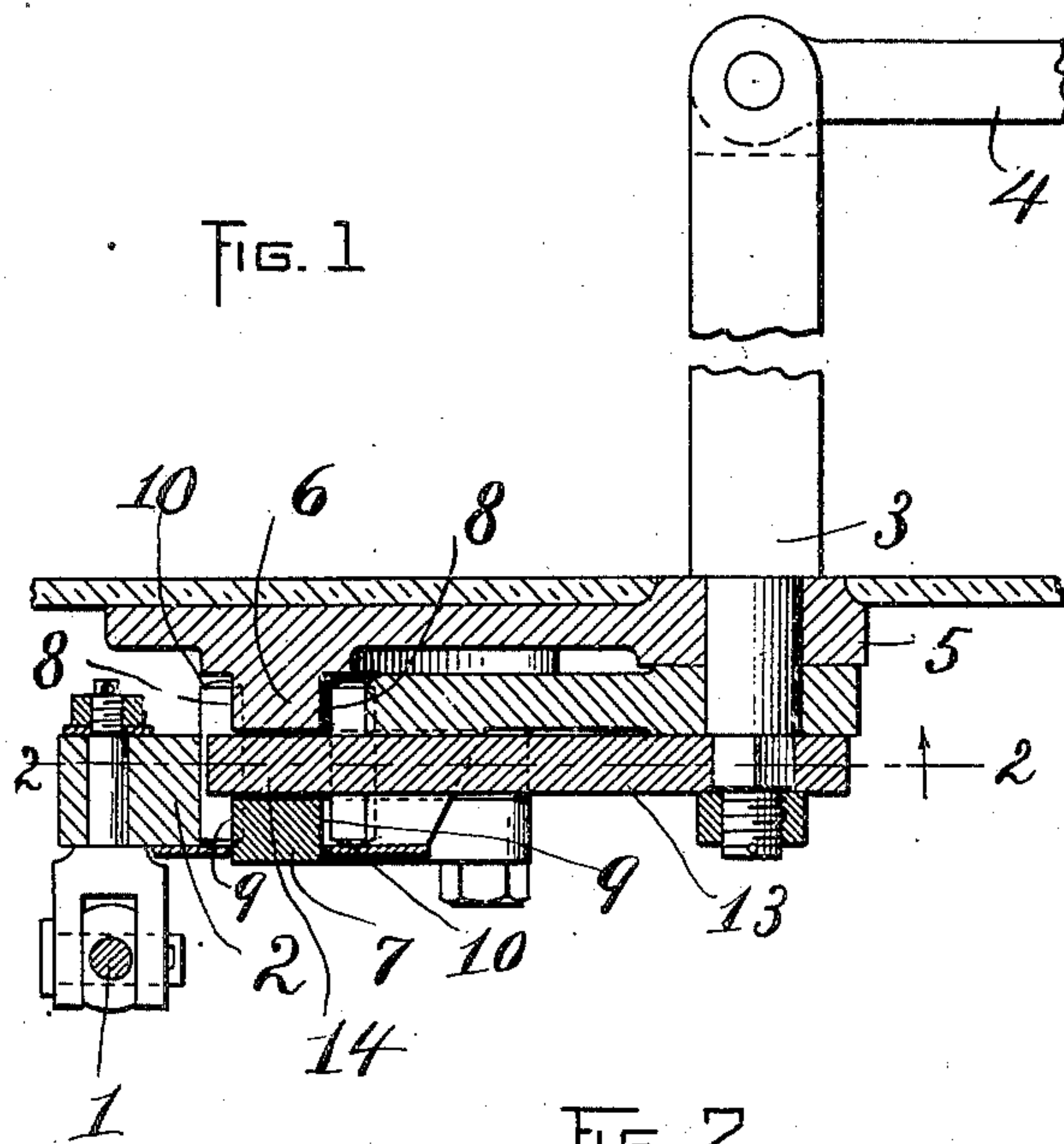
G. P. ABORN.

STEERING LOCK FOR VEHICLES.

(Application filed Sept. 11, 1901.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:

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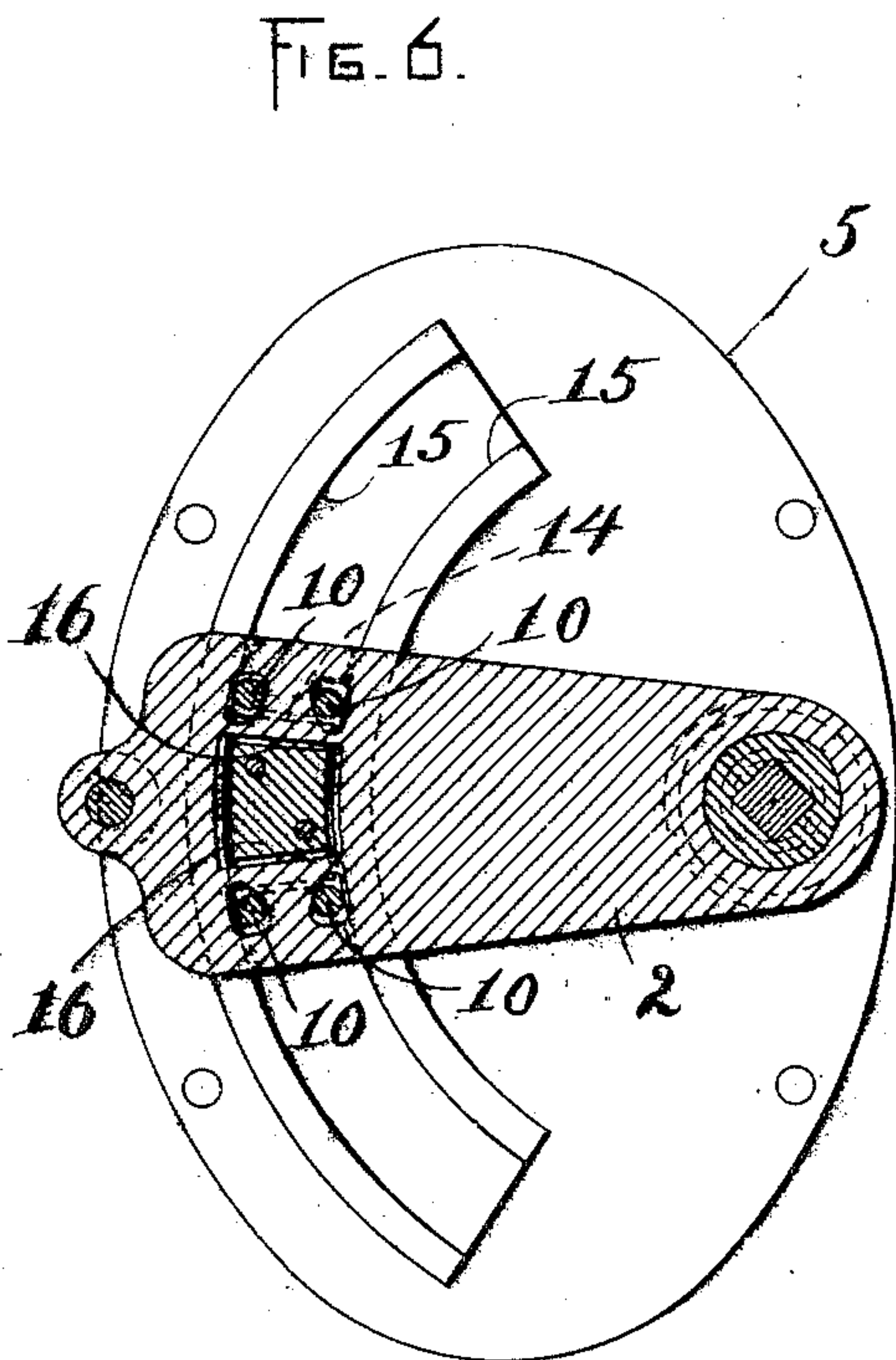
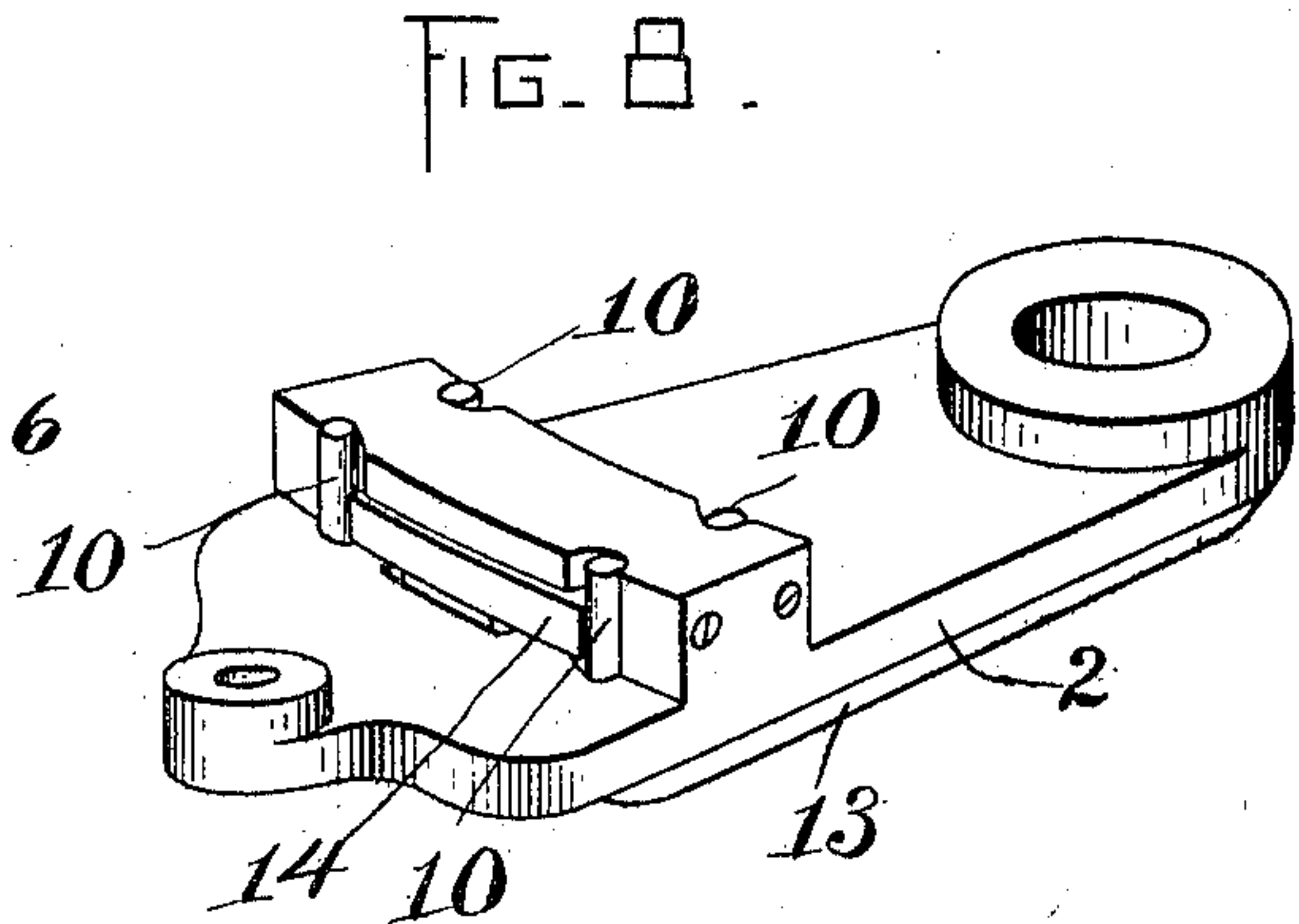
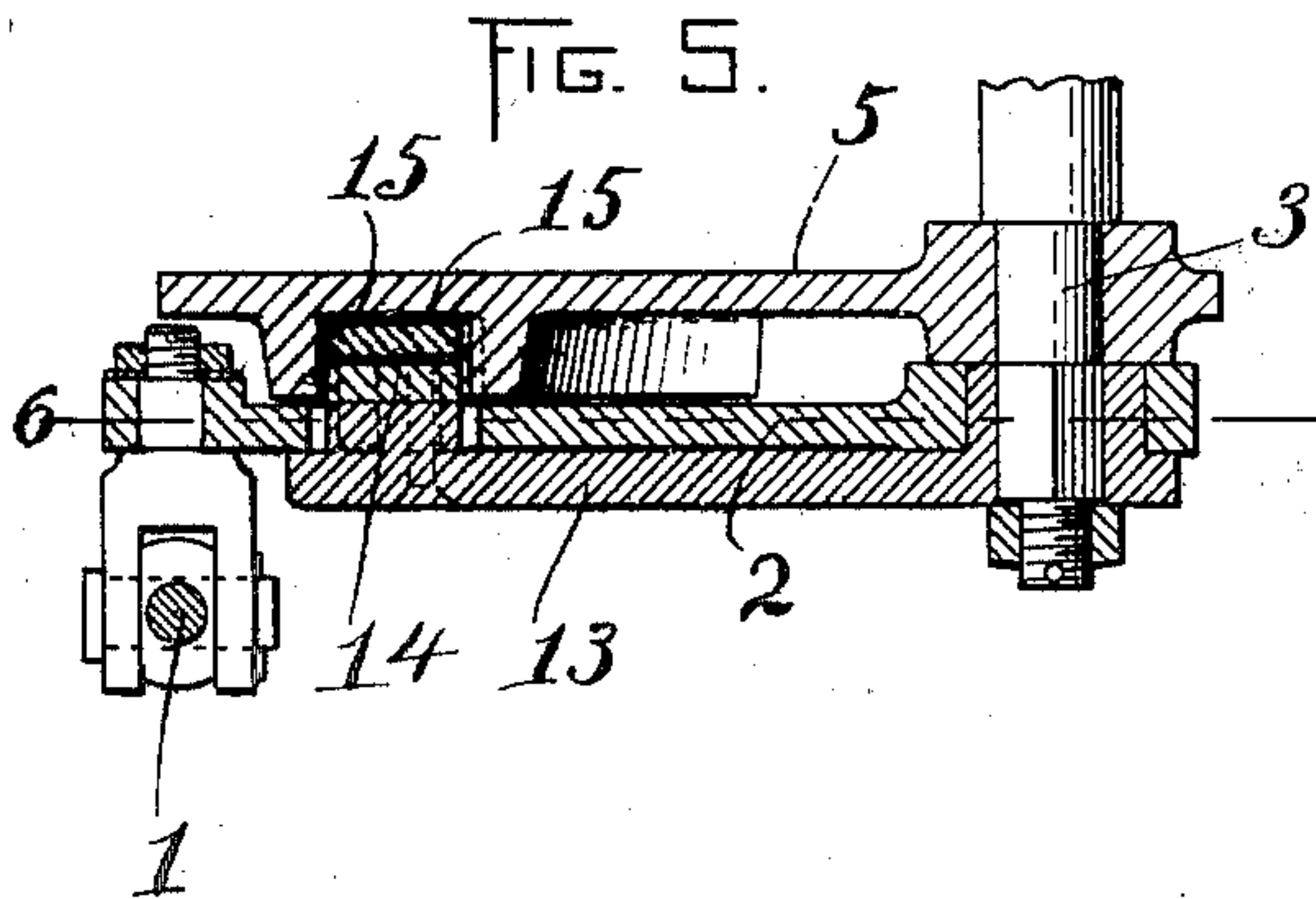
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WITNESSES:  
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# UNITED STATES PATENT OFFICE.

GEORGE P. ABORN, OF BOSTON, MASSACHUSETTS, ASSIGNOR OF ONE-HALF  
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## STEERING-LOCK FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 697,699, dated April 15, 1902.

Application filed September 11, 1901. Serial No. 75,042. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE P. ABORN, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Steering-Locks, of which the following is a specification.

This invention relates to those locking mechanisms principally designed to be applied to the steering apparatus of vehicles and vessels, having provisions for locking a movable member against its reversing thrust by means of automatic locking-clutches which are released by an initial slight movement of a steering-handle or other actuating device whose subsequent movement imparts motion to the said movable member.

The object of the invention is to provide a simple and compact mechanism of this character capable of a strong and secure locking action with a ready release and an absence of radial thrust on pivots.

Of the accompanying drawings, Figure 1 represents a longitudinal vertical section of a steering-lock constructed in accordance with my invention. Fig. 2 represents a section on the line 2 2 of Fig. 1. Fig. 3 represents a reverse plan view. Fig. 4 represents a perspective view of one of the members of the device hereinafter referred to. Fig. 5 represents a longitudinal vertical section of a modified form of my invention. Fig. 6 represents a section on the line 6 6 of Fig. 5. Fig. 7 represents a reverse plan view of said modification. Fig. 8 represents a perspective view of parts thereof.

The same reference characters indicate the same parts in all the figures.

Referring to the drawings, 1 designates a rod adapted to be connected to the steering-wheels of a vehicle, the rudder of a boat, or other member and pivotally connected to the outer end of an oscillatory arm 2, to which a swinging movement is imparted to move the steering-wheels or other member and which directly receives the reversing strain or thrust of said wheels. The arm 2 is loosely journaled on an actuating shaft or stem 3, which has the steering-handle 4 or other actuating device attached to it and is journaled to rotate in a base-plate 5. Said plate is provided with segmental-locking members 6 7, the up-

per one of which is illustrated as a flange cast on the plate 5, while the lower member is a parallel bar bolted to the base-plate and separated by a space from the flange 6. On these locking members are formed concentric inner and outer locking-surfaces 8 8 9 9.

The arm 2 is formed with a large recess, in the corners of which are located two pairs of locking-rolls 10 10, which cooperate with the locking-surfaces 8 9 in the base-plate and with complemental inclined locking-surfaces 11 11, formed on the arm 2. The rolls are normally pressed by springs 12 12 into the narrowest part of the recess formed by the surfaces 8 9 and the inclines 11. The two rolls 10 and inclines 11 on one side of the median axis of the arm 2 form, together with the fixed locking-surfaces 8 9, a pair of clutches which act in opposite radial directions, and the two rolls and inclines on the opposite side of said median axis form, together with the said fixed locking-surfaces, a second pair of clutches acting radially in opposition to each other and angularly in opposition to the first said pair of clutches.

13 is an actuating-arm fixed to the lower end of the steering-stem 3 and having a head 14 located between the two pairs of rolls 10 10 and a shank or neck just behind said head, which is adapted to engage either one of two bosses or abutments 16 16, formed on the arm 2, but is capable of a limited amount of free play between said abutments.

When the arm 13 is in its central position between the abutments 16 16, both pairs of rolls 10 10 assume their locking positions, and as these pairs of rolls act in angular opposition the arm 2 will become locked to the base-plate 5 against angular movement in both directions. The entire reversing thrust of the arm 2 is therefore borne by the locking-surfaces on the base-plate 5. Movement of the actuating-arm 13 by reason of rotation of the stem 3 to either side of the centralized position of said arm will unlock the two rolls 10 10 on that side, and as the arm 13 comes into engagement with the corresponding abutment 16 the arm 2 will be oscillated and the steering-wheels moved.

By means of the above-described construction I provide a simple device of few parts



in which the locking devices are adapted to be located on a long radius from the center of rotary movement—namely, the shaft 3—thereby obtaining great leverage and a secure locking action. At the same time the two clutches acting in radial opposition, but located on the same side of the center of rotary motion, prevent any radial thrust on the arm 2 from the locking action and consequent cramping of the arm 2 and wear in its bearings. I do not confine myself to the exact proportions or arrangement herein set forth. For instance, other forms of clutches may be employed. The arms 2 and 13, with their locking devices, may be duplicated and the fixed locking-surfaces may be extended circumferentially to any desired degree.

Figs. 5 to 8 represent a modification in which two fixed inwardly-facing locking-surfaces 15 15 are provided on the base-plate 5, and the locking-rolls 10 10 of each pair have an outward-locking action away from each other instead of an inward locking action toward each other, as in the previously-described embodiment. The segment 7 of Figs. 1 to 4 is omitted in this form of my invention; but the other parts are the same in function, though differing in shape.

It is obvious that in either form of my invention shown in the drawings the steering pressure instead of being directly transmitted from the arm 13 to the arm 2 through abutments, such as 16, may be indirectly trans-

mitted through the head 14, the rolls 10, and the rear ends of the recesses in which said rolls lie.

I claim—

1. In a locking device, a fixed locking member having two opposed locking-surfaces, a rotary member to be moved, a pair of automatic clutches located on the same side of the rotary axis of said rotary member and acting simultaneously in opposite radial directions on the respective locking-surfaces to lock said arm to the fixed locking member, and a rotary actuator to release the clutches and rotate the rotary member.

2. In a locking device, a fixed locking-segment having two opposed locking-surfaces, an oscillatory arm to be moved, two pairs of automatic clutches located on the same side of the rotary axis of said arm, the pairs locking alternatively in opposite angular directions, the two clutches of a pair acting simultaneously in opposite radial directions on the respective locking-surfaces to lock said arm to the segment, and an oscillatory actuator acting in opposite angular directions to release the clutches and oscillate the arm.

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

GEORGE P. ABORN.

Witnesses:

R. M. PIERSON,  
M. B. MAY.