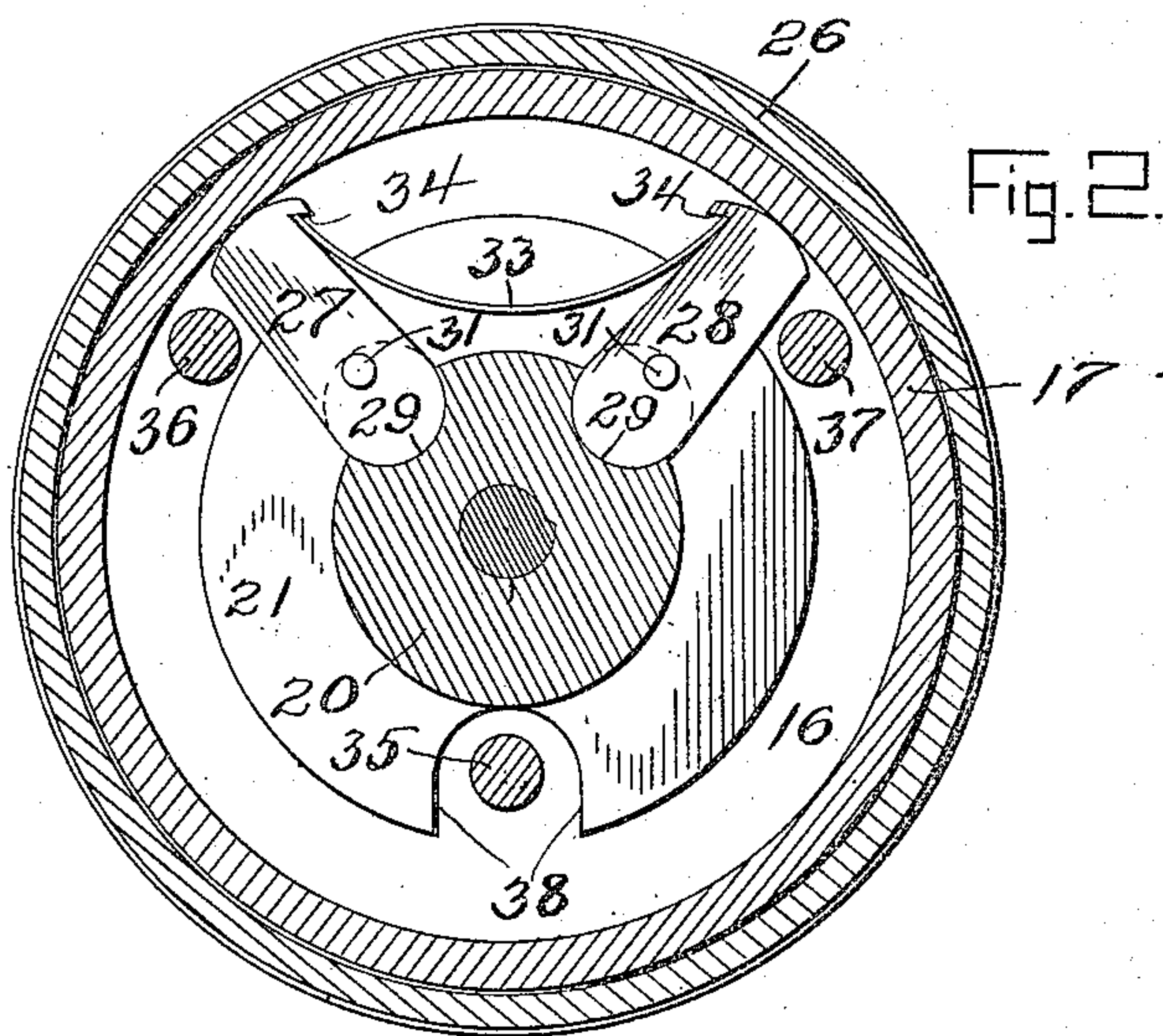
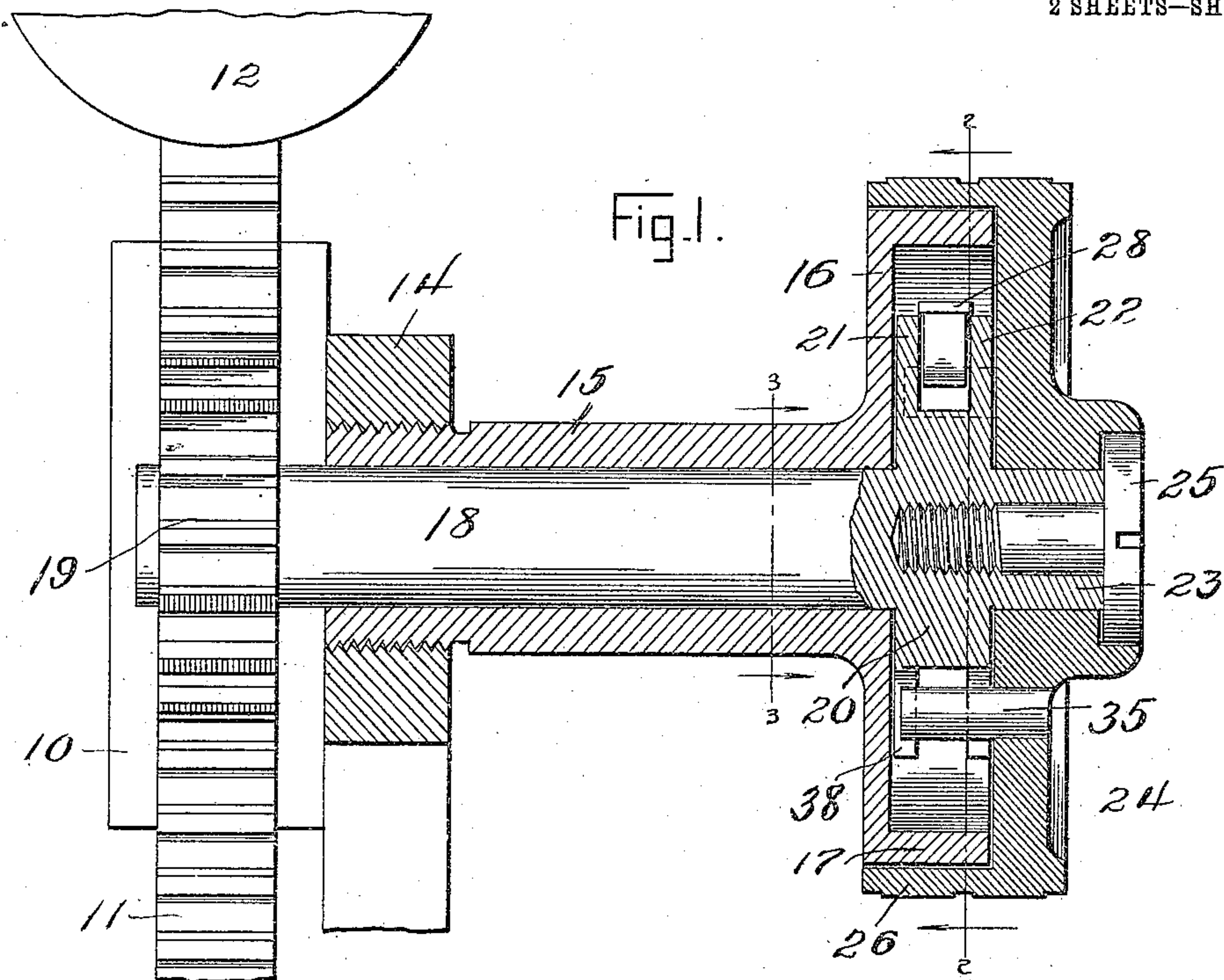


H. D. CHAPMAN.
ADJUSTING DEVICE.
APPLICATION FILED JUNE 2, 1909.

945,909.

Patented Jan. 11, 1910.

2 SHEETS—SHEET 1.



Witnesses

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Howard D. Chapman

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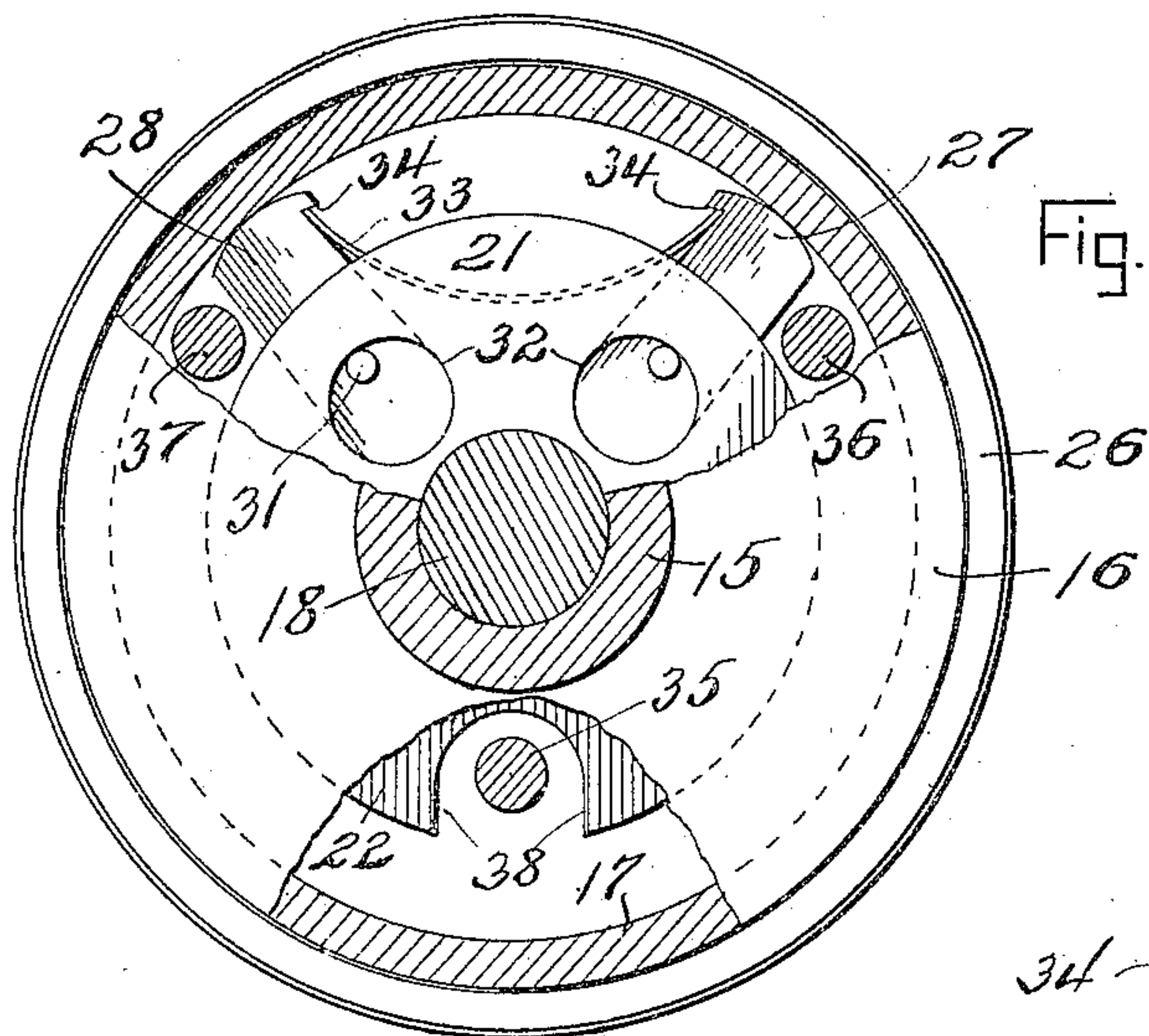


Fig. 3.

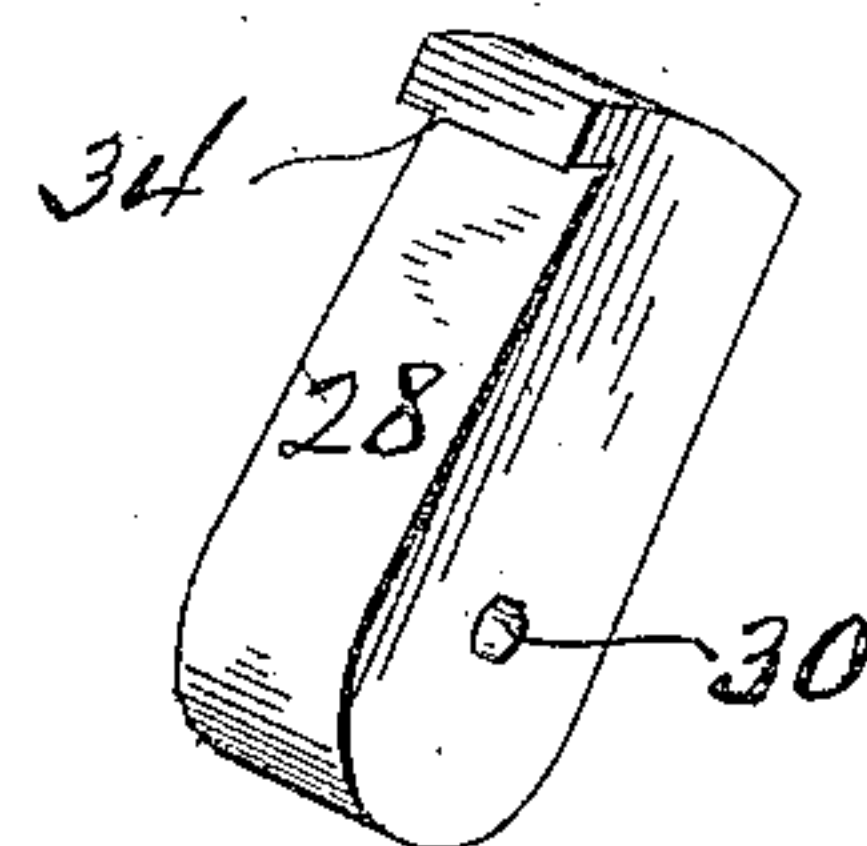
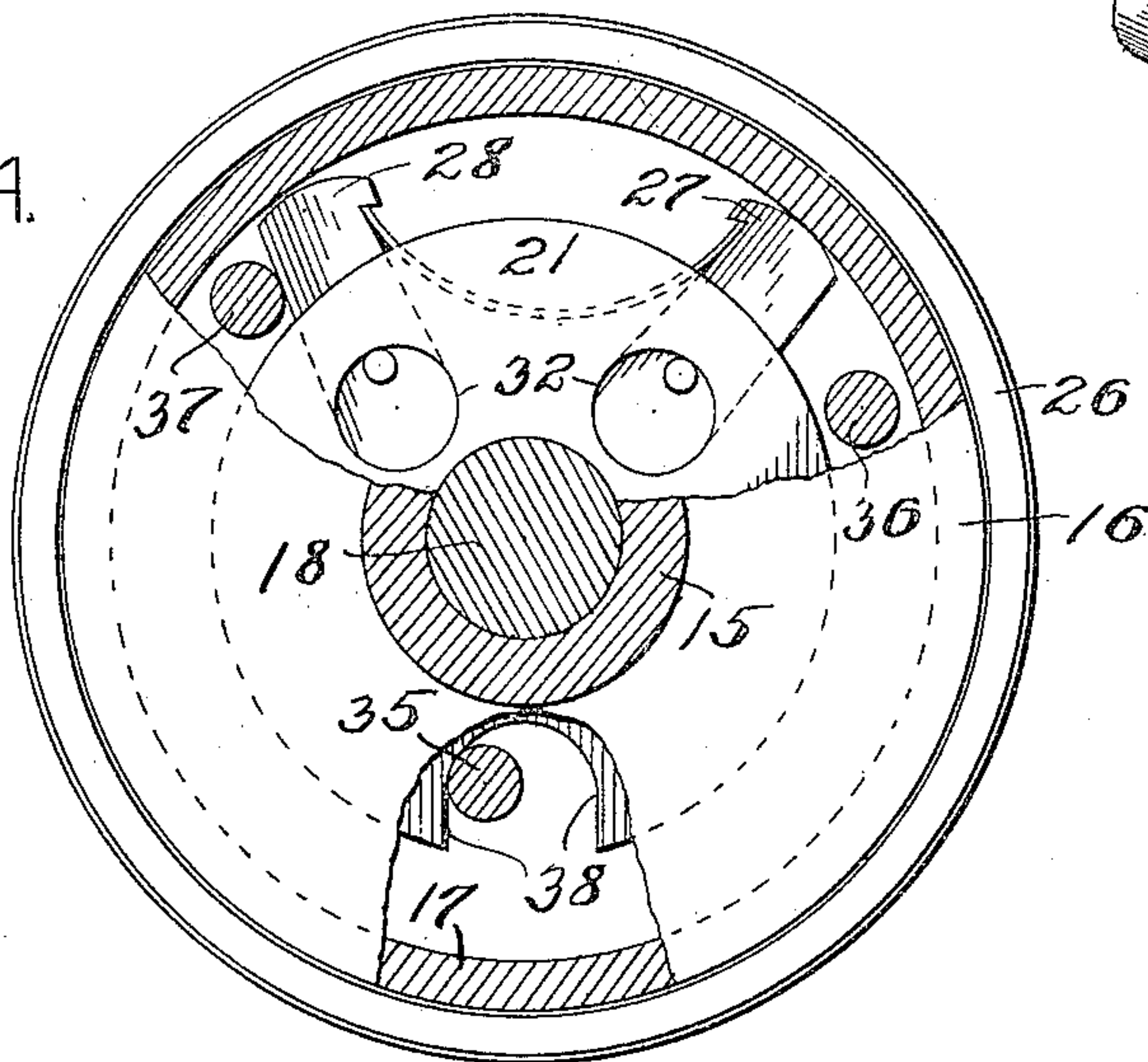


Fig. 5.

Fig. 4.



Witnesses

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UNITED STATES PATENT OFFICE.

HOWARD D. CHAPMAN, OF WASHINGTON, DISTRICT OF COLUMBIA.

ADJUSTING DEVICE.

945,909.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed June 2, 1909. Serial No. 499,674.

To all whom it may concern:

Be it known that I, HOWARD D. CHAPMAN, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Adjusting Devices, of which the following is a specification.

This invention relates to certain new and useful improvements in adjusting devices, and will be hereinafter particularly referred to and described in connection with a sight-adjusting mechanism or device, without however limiting the invention to the application thereof herein shown and described.

The invention is an improvement on the type of device shown and described in Letters Patent No. 837,835, for improvement in sight-adjustment, issued December 4, 1906, to James W. Hicks and myself, and has for its main object to simplify the construction of such devices as well as cheapen the cost of production, and at the same time produce a device more direct and positive in its action both as to the release of the gripping dogs or pawls and the application of power to the adjusting-shaft.

A practical embodiment of my invention is illustrated in the accompanying drawings and will be hereinafter described in detail, like numerals used in the description designating like parts throughout the different views of the drawings, in which:

Figure 1 is a view partially in section and partially in elevation, showing the adjusting rack of a sight-mechanism for guns and showing the application of my improvement thereto; Fig. 2 is a transverse vertical sectional view on the line 2—2 of Fig. 1, looking in the direction of the arrow; Fig. 3 is a transverse vertical sectional view taken on the line 3—3 of Fig. 1, looking in the direction of the arrow, the web of the clutch-drum being partly broken away to better illustrate parts of the device; Fig. 4 is a similar view taken on the same line of section, and showing the hand-wheel turned to a position to release one of the clutch-dogs and actuate the adjusting-shaft, and, Fig. 5 is a detached detail perspective view of one of the clutch-dogs.

In the drawings there is shown at 10 a guide-block such as is carried by the breech of a gun and in which is mounted a vertically-movable rack-bar 11 provided at its upper end with any desired form of sight

12. At one side of the guide block is an extension 14 provided with a threaded opening in which is screwed one end of a sleeve 15 formed at its opposite end with a web 16 carrying a clutch-drum 17, the sleeve constituting practically an elongated hub for the clutch drum.

Mounted in the sleeve or hub 15 is an adjusting shaft 18 at one end of which is a fixed pinion 19 meshing with the rack-bar 11, so that when the shaft is rotated in one direction or the other, the rack-bar will be moved up or down according to the direction of movement imparted to the shaft.

The shaft 18 extends through and beyond the clutch-drum 17 and intermediate the web 16 and the outer end of the shaft, is formed with a hub or circular boss 20 which is provided with spaced radiating flanges 21, 22.

The portion 23 of the shaft 18 beyond the hub 20 constitutes a journal on which the actuating member is mounted, the member in this instance being shown in the form of a hand-wheel 24 rotatable on the journal 23 and held against displacement by a retaining screw 25, the head of which lies in a countersink in the hub of the hand wheel. When this actuating member is in the form of a hand-wheel as shown, the same is provided with a rim 26 to entirely inclose and cover the clutch-drum 17 and such rim is preferably corrugated or roughened so as to enable a firm grip being obtained thereon by the hand. Obviously, other forms of actuating members may be employed as may be desired according to the particular use to which the device is to be applied.

Between the flanges 21, 22 are the clutch-dogs 27, 28 for engagement with the clutch-drum 17. These clutch-dogs have free movement between the flanges, and are provided with rounded inner ends which are seated in rounded seats 29 provided therefor in the periphery of the hub 20. By this construction I obviate entirely, the use of pivot pins for the clutch dogs, the latter working on the rounded inner ends thereof and thus dispense with all parts liable to break or shear off in use. In order however that the clutch-dogs may not drop out of their seats in case the hand-wheel is removed for any cause, I preferably provide the dogs with openings 30 to receive pins 31 which are placed in the dogs after the latter have been placed in position. These pins are inserted

through apertures 32 provided in the flanges 21, 22 and which openings are of a diameter as shown so that the pins 31 will travel around the arc of the apertures 32 as the clutch-dogs are actuated, the arc on which the pins travel being the same as the arc of the seat on which the inner end of the clutch-dogs move; thus the pins 31 while not acting in any manner as pivot pins, serve to prevent any lost motion in the clutch-dogs as well as serving to retain the dogs in position should the hand-wheel be removed.

The dogs 27, 28 on account of the manner in which they are mounted require no expensive machine work thereon and may be readily formed out of ordinary bar stock. These dogs at their outer ends are rounded and engage with the inner face of the clutch drum to lock the adjusting-shaft against movement until the dogs are released. The dogs are opposed to each other in their arrangement, that is, when the actuating element is turned in a direction to release the dog 27 from clutched engagement with the clutch drum 17, the dog 28 drags, and when the actuating-element is turned in the reverse direction so as to release the dog 28 from clutched engagement with the clutch drum 17, the dog 27 drags during the movement of the actuating member in that direction.

The dogs are at all times other than when the actuating-member is being operated, held in clutched engagement with the clutch-drum 17 by means of a bow spring 33, the ends of which are received against shoulders 34 on the mutually adjacent faces of dogs 27, 28. Each of the dogs is so proportioned that the extreme length of the dog is greater than the distance from the base of the dog to the inner face of the clutch-drum 17, and, as a result, as each dog is moved in one direction, it engages the inner face of the clutch-drum, and when moved in the opposite direction it releases the drum.

To cause the actuating-member to release one or the other of the dogs 27, 28 and turn the adjusting-shaft when said member is operated, the said member is provided with means for direct engagement with the dogs and direct engagement with the flanges 21, 22, and since the latter are an integral part of the adjusting shaft, I obtain practically a direct engagement with the adjusting-shaft to operate same. In the present illustration the means shown for accomplishing this result consists of three pins 35, 36 and 37 projecting inwardly from the actuating-member. The pins 36 and 37 are disposed so as to lie back of the respective dogs, while the pin 35 lies in a notch opening 38, or other cut-away portion provided therefor in the periphery of the flanges 21 and 22, the pin 35 engaging one or the other of the mu-

tually adjacent walls of the notch according to the direction in which the hand-wheel is turned.

In the operation of the device as illustrated and above described it will be evident, assuming that the hand wheel 24 is turned to the right, that the pin 37 will be carried toward and into engagement with the dog 28, moving said dog out of clutched engagement with the clutch-drum 17 (see Fig. 4) and the pin 36 is carried away from the dog 27. The pins 35, 36 and 37 are so positioned or spaced relatively to each other that when the movement above described has been imparted to the hand wheel 24, and the dog 28 released, the pin 35 just at this time comes into engagement with one wall of the notch 38 and the hand wheel is then directly engaged with the adjusting-shaft so that any further movement imparted to the hand wheel will be transmitted to said shaft and the rack bar 10 and sight 12 correspondingly moved. It will be evident of course that when the hand wheel is turned in the opposite direction, the pin 36 will be engaged with the opposite wall of the notch 38, to impart the reverse movement to the shaft 18 and parts adjusted thereby. In the movement in either direction, one of the dogs must of necessity be released, the other dog dragging, and immediately upon release of the hand wheel, both dogs are clutched with the clutch drum, one dog locking the shaft 18 against rotary movement in one direction, and the other dog locking said shaft against rotary movement in the opposite direction.

The notch 38 in the flanges 21, 22 is made of sufficient width so that the pin 35 will have a travel sufficient to prevent engagement with the side wall of the notch toward which it is traveling until after the pin 36 or 37 as the case may be has engaged its respective dog and moved the latter out of clutched engagement with the clutch drum.

While I have herein shown and described the device as embodied in a sight-adjusting mechanism, yet I do not wish to confine myself to this specific embodiment of the invention as the same is applicable to many purposes other than the one shown and described.

What I claim is:

1. In a device of the character described, the combination with an adjusting shaft, of a fixed clutch drum, clutch dogs carried by the shaft to engage the drum and hold the shaft against rotation in either direction, a hand wheel movable on the shaft, and pins carried by said hand wheel for direct engagement with the clutch dogs and shaft, when the hand wheel is actuated, the said pins being so disposed that when one pin is engaged with one of the clutch dogs to release said dog from the clutch drum another

of said pins is brought into engagement with the shaft to rotate the latter with the hand wheel.

2. In an adjusting device, an adjusting shaft, a fixed clutch member through which the shaft extends, a pair of movable clutch dogs carried by the shaft both normally in clutching engagement with the fixed clutch member, an actuating member movable on the shaft, means carried by said actuating member for direct engagement with the clutch dogs to release the latter from clutched engagement with the fixed clutch member, and means also carried by the actuating member for direct engagement with the shaft to move the latter with the actuating member.

3. In an adjusting device, an adjusting-shaft, a fixed clutch-member, a pair of clutch-dogs carried by the shaft and movable thereon independently of the movement of the shaft, said dogs being so constructed and disposed with relation to the shaft that when moving therewith one dog drags on the fixed clutch-member, and, the other dog is free from engagement with said clutch-member, an actuating-member mounted on the adjusting-shaft and having a limited free rotary movement thereon in both directions, means carried by said actuating-member to engage and release from clutched engagement with the clutch-member one clutch-dog upon the limit of the independent movement of the actuating-member being reached, and means also carried by the actuating-member for engagement with the adjusting-shaft immediately upon the releasing of said clutch-dog to cause unitary movement of the shaft and actuating-member during further movement of said member.

4. In an adjusting device, an adjusting-shaft, a fixed clutch-member, a pair of movable clutch elements carried by the shaft and

held normally in clutched engagement with the fixed clutch-member to hold the shaft against rotary movement in either direction, an actuating member mounted on the adjusting-shaft to have limited movement thereon independently of the shaft, means carried by said member for direct engagement with one or the other of the clutch elements according to the direction in which said member is moved to release said element from clutched engagement with the fixed clutch-member, and means also carried by said actuating-member for direct engagement with the adjusting-shaft immediately upon the release of said clutch-element to effect unitary movement of the adjusting-shaft and actuating-member during further movement of the latter.

5. In an adjusting device, an adjusting-shaft provided with a hub and two spaced flanges projecting from the hub and having an opening, a fixed clutch-drum surrounding said hub and flanges, a pair of clutch-dogs mounted between said flanges with their inner ends seated in said hub and their outer ends normally held in engagement with the inner face of said clutch-drum, a hand wheel loosely-mounted on the adjusting-shaft, pins carried by said wheel for engagement with the respective dogs according to the direction of movement imparted to the wheel, and a pin carried by said wheel and projecting into the opening in said flanges to engage the latter and impart rotary movement to the adjusting shaft as described.

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

HOWARD D. CHAPMAN.

Witnesses:

A. M. WILSON,
M. E. LOURY.