

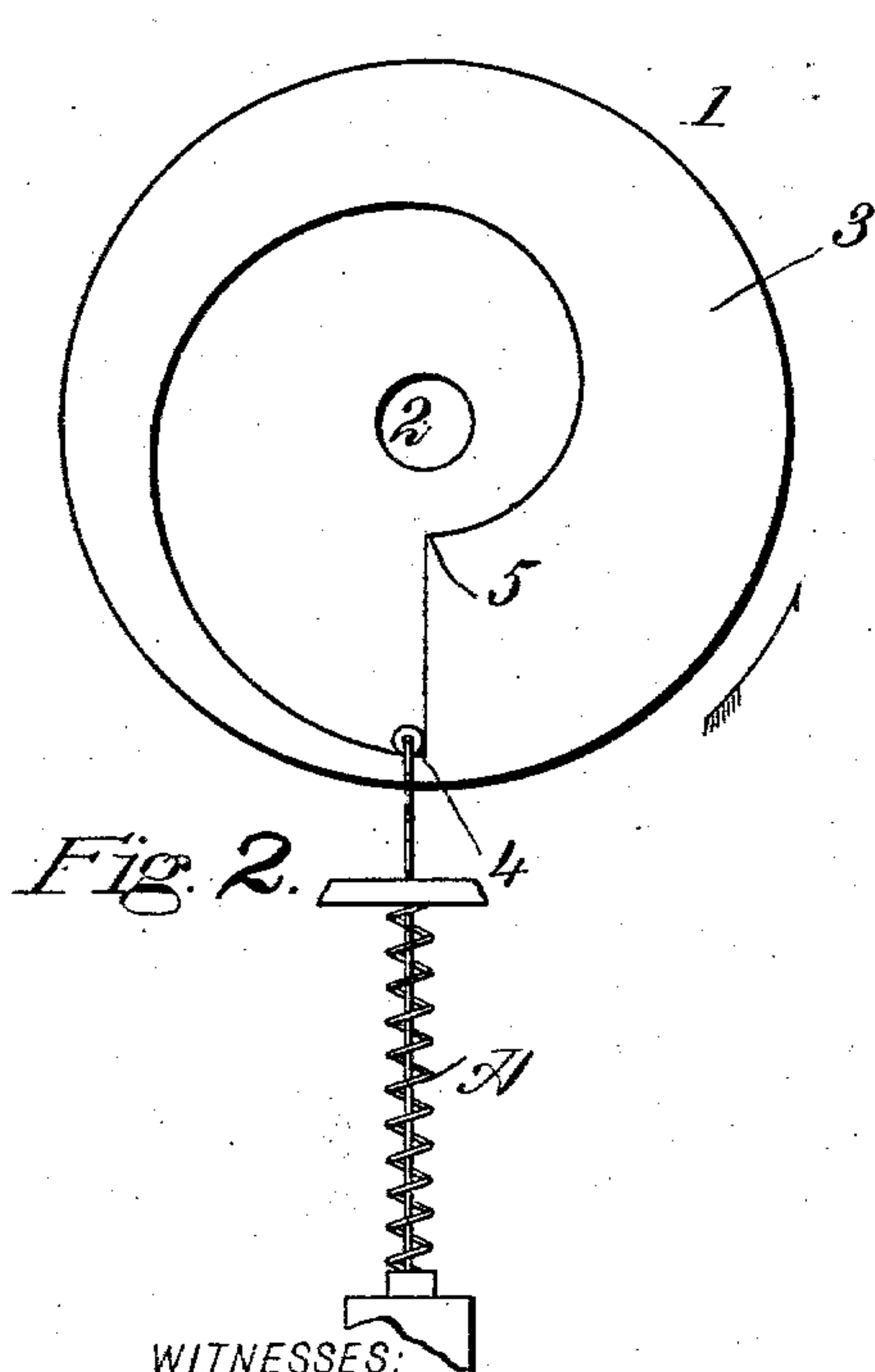
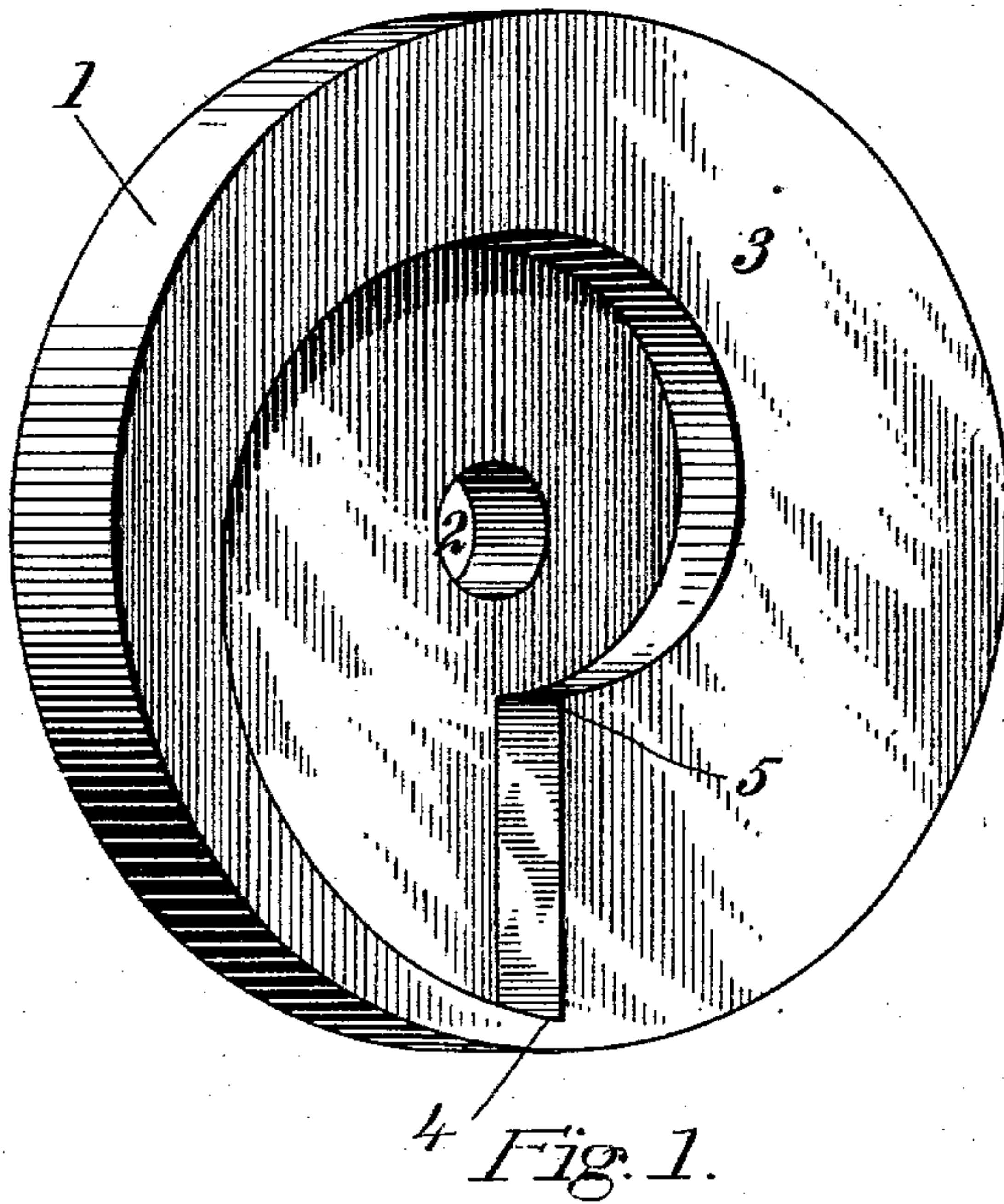
No. 740,816.

PATENTED OCT. 6, 1903.

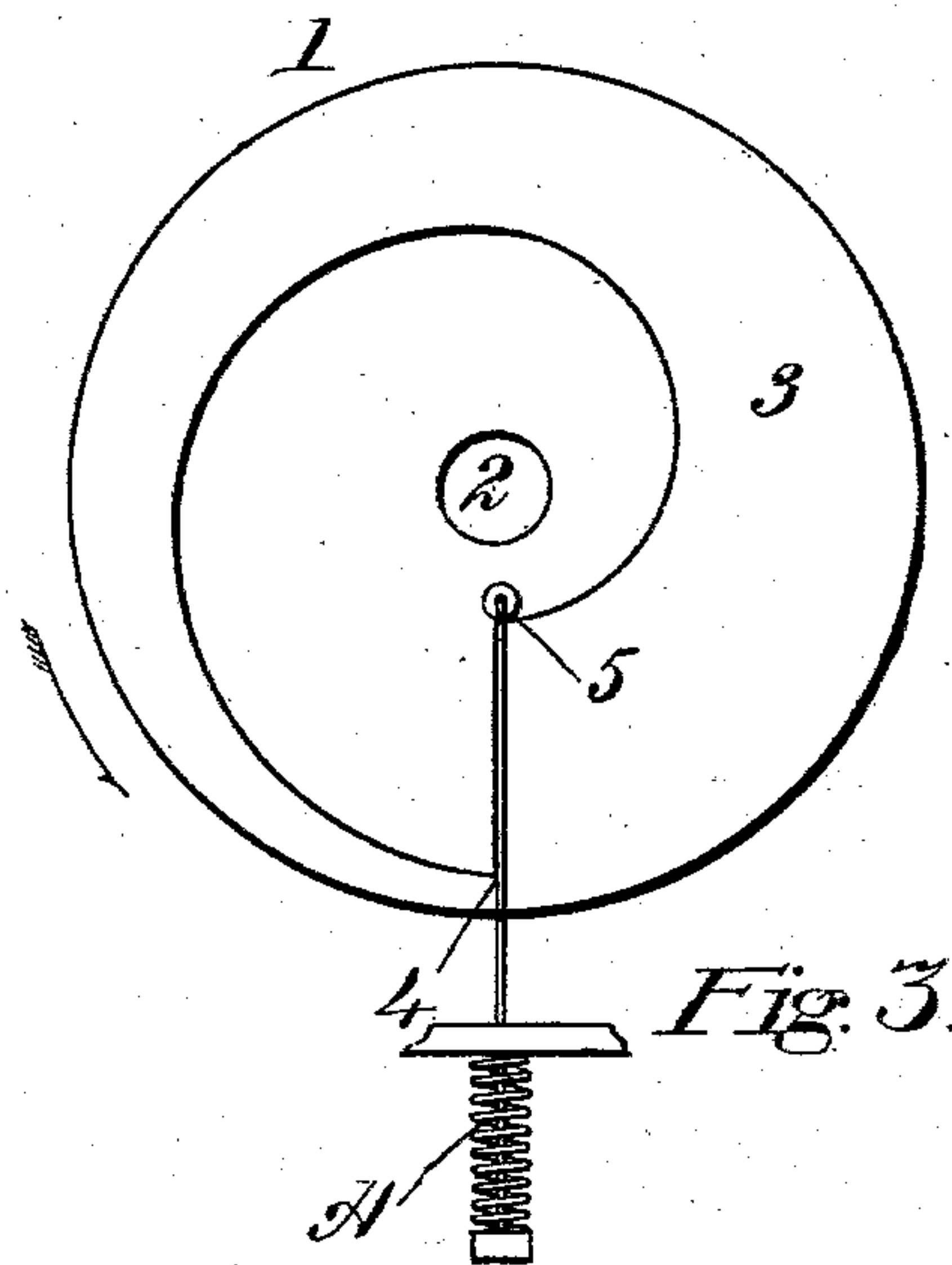
W. H. DAILY.
CAM.

APPLICATION FILED JAN. 12, 1903.

NO MODEL.



WITNESSES:
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UNITED STATES PATENT OFFICE.

WILLIAM H. DAILY, OF CARTHAGE, ILLINOIS.

CAM.

SPECIFICATION forming part of Letters Patent No. 740,816, dated October 6, 1903.

Application filed January 12, 1903. Serial No. 138,699. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. DAILY, a citizen of the United States, and a resident of Carthage, in the county of Hancock and State of Illinois, have invented new and useful Improvements in Cams, of which the following is a full, clear, and exact description.

This invention relates to improvements in cams, and has particular application in the construction of a device of this character, which is especially adapted for assisting in compressing a gas, a spring, or the like.

In carrying out the present invention I have particularly in view as an object the construction of a cam disk or wheel which shall take its load at a point farthest from the center or at the greatest point of leverage and shall release such spring at a point nearest the center or at the shortest point of leverage. By this means it is possible to compress a spring or a gas without the loss of any power save friction and with the least possible jar to the machinery and the operator.

A further object of the invention is to so construct or form the cam that it shall be compact, simple, easily made, and it shall be especially adapted for use on rock-drills, air-compressors, hay-presses, baling-presses, stamp-mills, and like mechanisms.

In the cams heretofore constructed for use on mechanisms of this character, especially that of hand-power rock-drills, which are operated by spring-power, it has been customary to take the weight or spring to be compressed at the point nearest to the center of the cam and release it farthest therefrom, this resulting in the loss of half the power. For instance, in the compression of a spring or gas it is readily seen that the more the spring or gas is compressed the greater becomes the resisting force of said spring or gas, therefore the greater the power necessary to compress said spring or gas, and the old styled cams, such as are used on stamp-mills and rock-drills, take the spring nearest to the center of the cam, and as the cam is revolved the leverage power decreases, for the work to be done gets farther away from the center and at the same time the resisting force of the spring grows stronger. This results in a loss of one-half the power; but in the present instance the order of taking and releasing the load is sim-

ply reversed—that is, the cam takes the spring when it is easiest to compress at its greatest length of leverage, that being at the point or toe of the cam, and as the cam is revolved the load is drawn toward the center. Therefore as the resisting force of the spring grows stronger the leverage power of the cam also grows stronger. By this order of manipulation no power is lost save friction, and, furthermore, the spring being released near the center of the cam there is very little jar to the machine or operator.

It is further my object to overcome the objection mentioned as incident to the old-style cams and at the same time so construct the body of the cam that it shall be free from all projections—such as springs, studs, or the like—which are liable to be easily damaged or otherwise injured.

To the accomplishment of the above-recited ends my invention consists in the peculiar construction, combination, and arrangement of parts described in this specification, delineated in the accompanying drawings, and set forth in the appended claim.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a perspective view of a cam embodying my improvements. Fig. 2 is a diagrammatic view of my improvements, showing the cam in the act of commencing the compression of the spring at a point farthest from the center of the cam; and Fig. 3 is also a diagrammatic view showing the spring compressed at a point nearest the center or at the shortest point of leverage. It is also shown in a position for being released.

Referring now to the accompanying drawings, 1 designates the main body portion of the cam, which may be composed of any suitable or desired material, and in the present instance is shown of preferably disk-like or circular conformation and is provided with a bore 2 for the reception of the shaft.

The face of the disk, which is shown at 3, is formed with a groove or cut-away portion approximately the shape of a semiheart-shaped cam. This groove may be of any desired depth to serve particular purposes, it being in the present instance equal in dimen-

sions to about one-half the transverse diameter of the periphery of the cam and is relatively large when compared with the face thereof.

- 5 The spring, which I have designated by the letter A in diagrammatic views in Figs. 2 and 3, is taken at the toe or point 4 of the cam which is farthest from the cam-shaft or center of the disk, and as the cam is revolving
10 in the direction shown by the arrow the spring is compressed by the heel or swell portion of the cam-wheel, and as the cam makes a complete revolution it reaches a point nearest to the center of the cam, as shown in Fig. 3, and
15 as the cam continues its revolution it is released from the shoulder 5 thereof down to the farthest point or toe of the cam and is again carried up, as hereinbefore described, the operation being repeated.
- 20 While I have given a specific description of the shape of the construction of my improvement, it is of course to be understood that certain changes may be made in details without departing from the spirit of the invention—that is to say, the cam might be of other
25 shape than circular and the size of the formation of the cam-groove might also be varied

at will, the principal object being to form a cam having a groove so constructed that the compression of the spring shall commence at 30 the point farthest from the center or at the greatest point of leverage and shall be released at a point nearest the center or at the shortest point of leverage.

Having thus described my invention, I 35 claim as new and desire to secure by Letters Patent—

A cam comprising a grooved circular disk, formed with an acute shoulder near the center thereof, and a toe portion near the periph- 40 ery thereof, said cam being adapted to compress a spring, such compression beginning at a point farthest from the center of the same, the spring being released at the shoulder portion of said cam after a complete revolution 45 of the latter, substantially as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. DAILY.

Witnesses:

C. V. DONOVAN,
A. L. MORAN.