

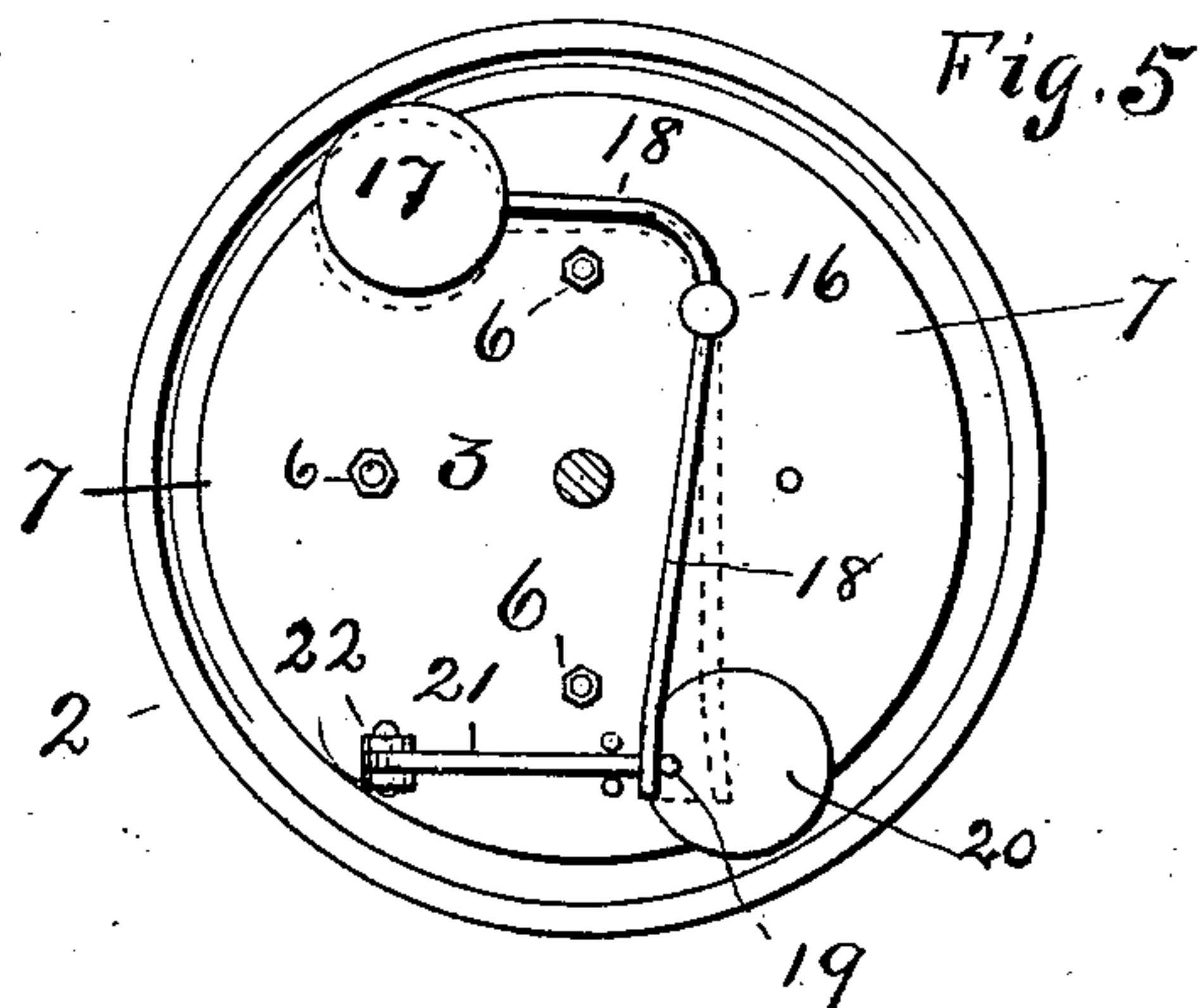
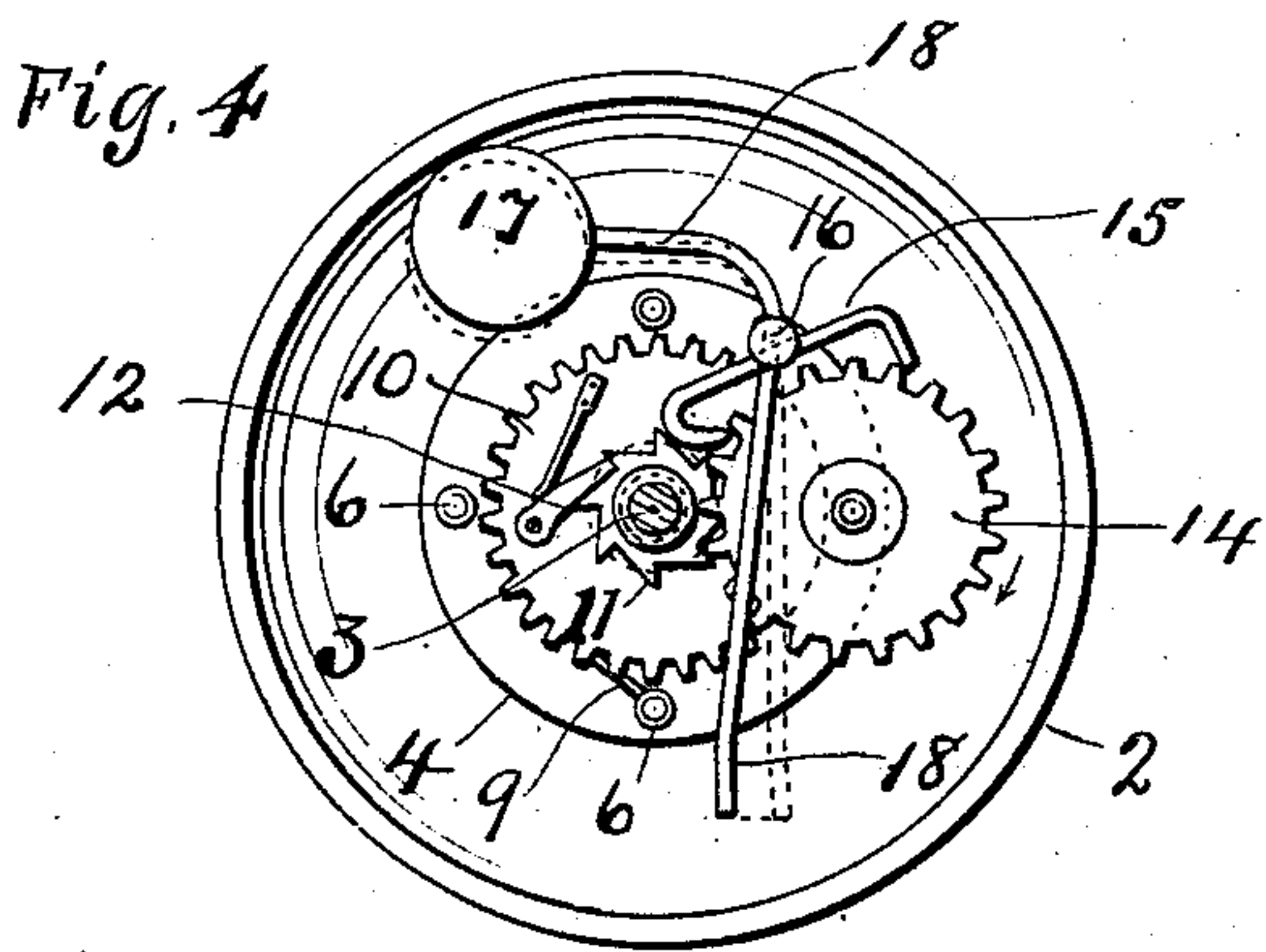
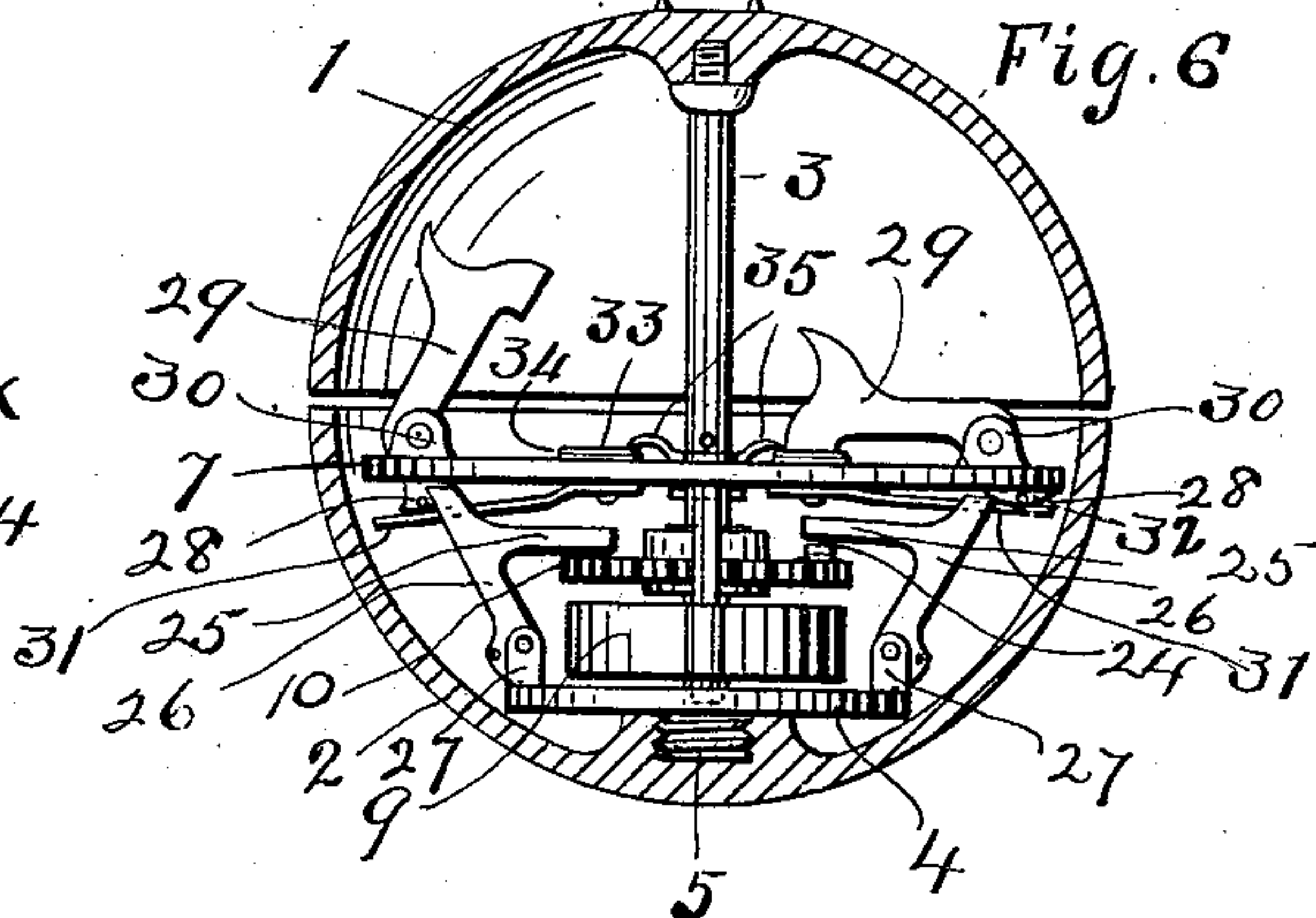
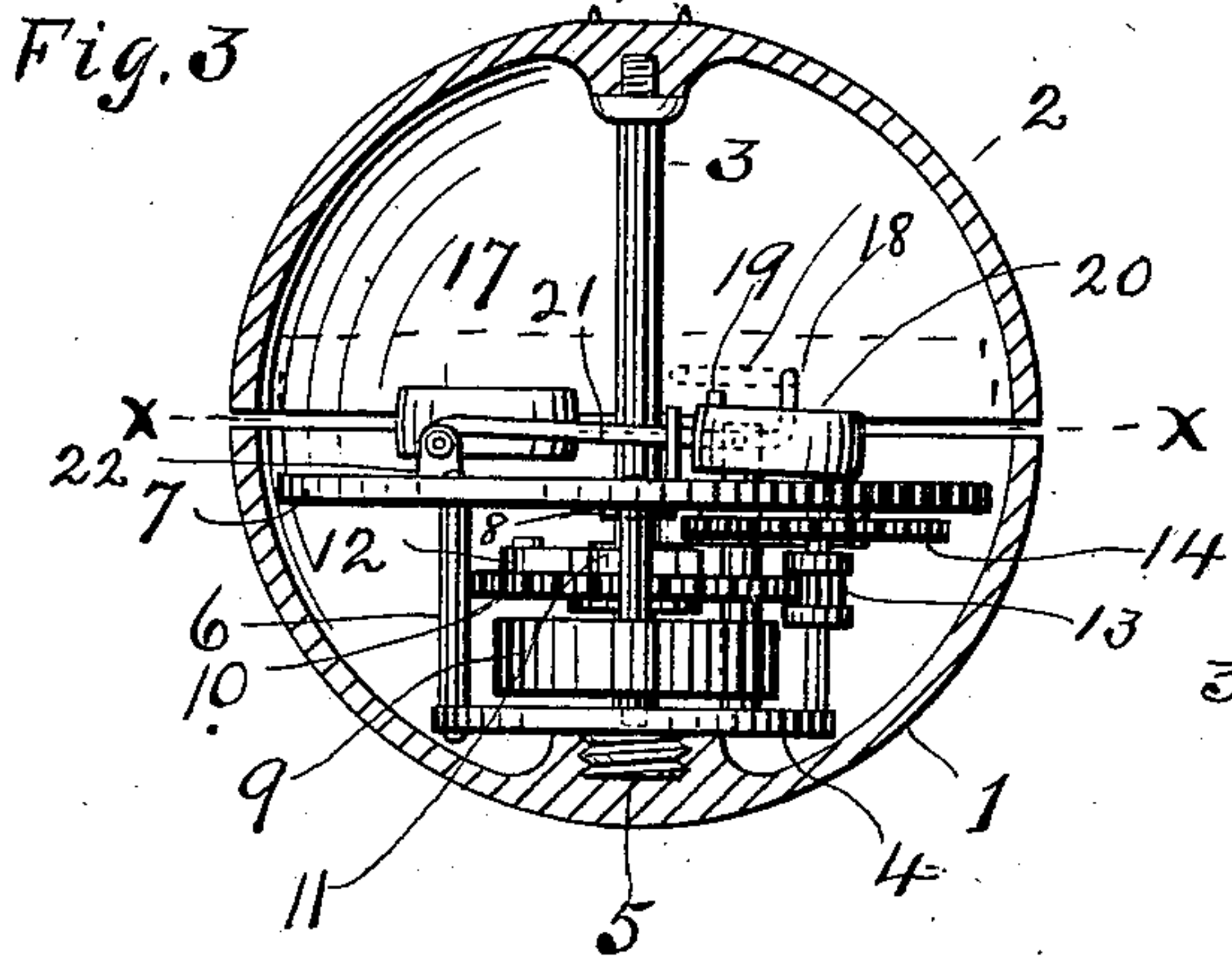
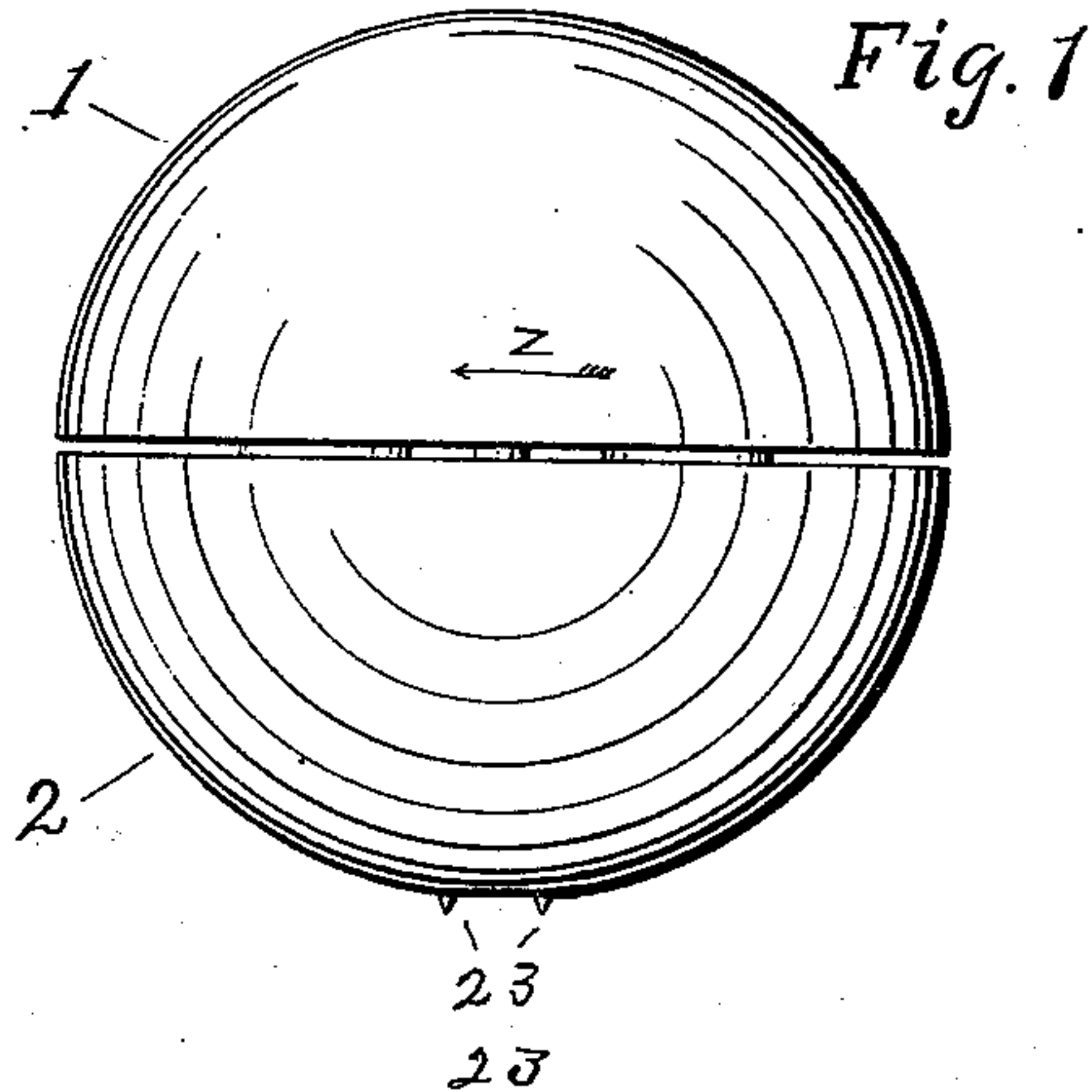
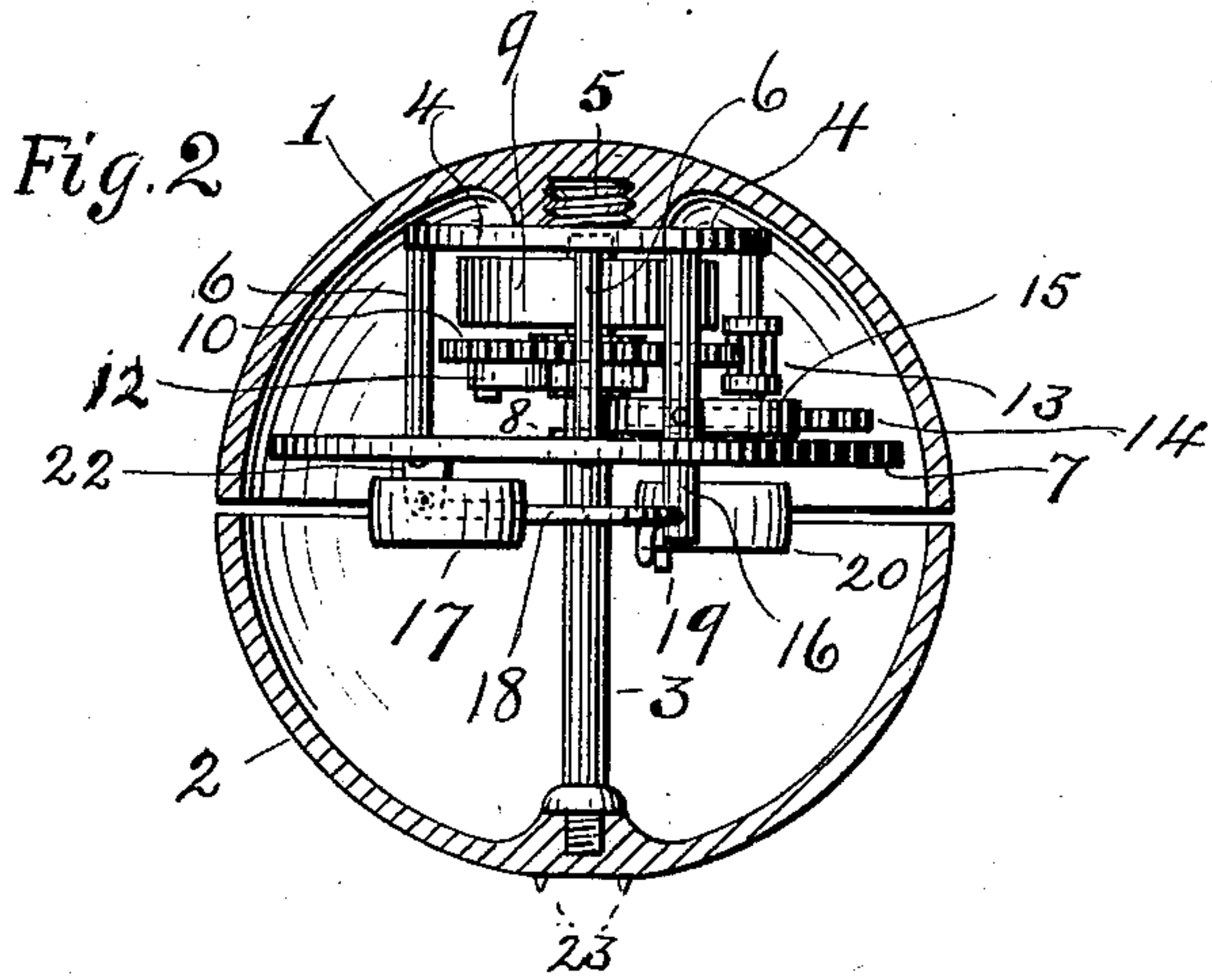
(No Model.)

2 Sheets—Sheet 1.

L. S. BUFFINGTON.
BURGLAR ALARM.

No. 521,151.

Patented June 12, 1894.



Witnesses
C. H. Hill,
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Leroy S. Buffington Inventor

By Attorney P. H. Gunchel

(No Model.)

2 Sheets—Sheet 2.

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Fig. 7

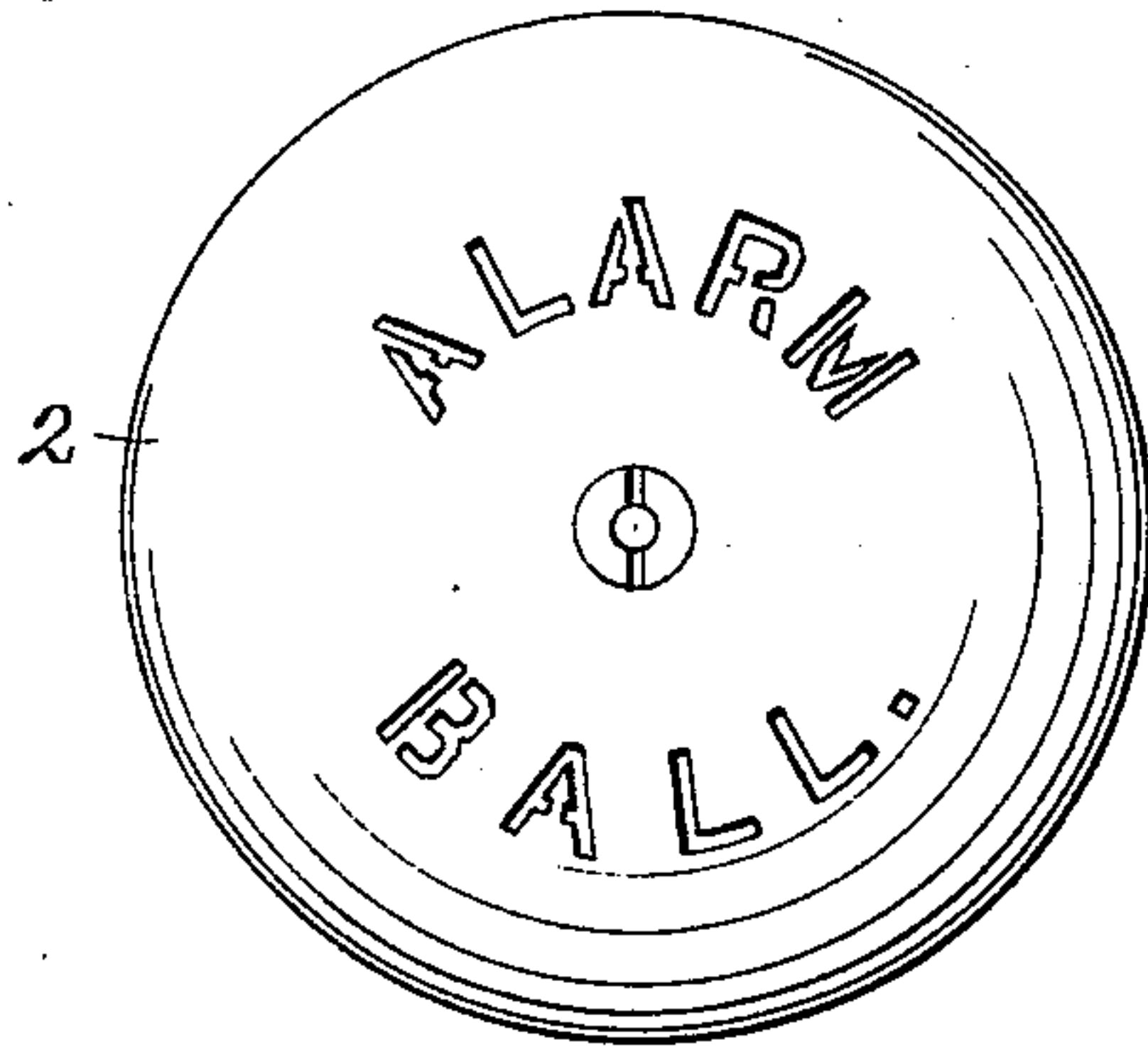


Fig. 8

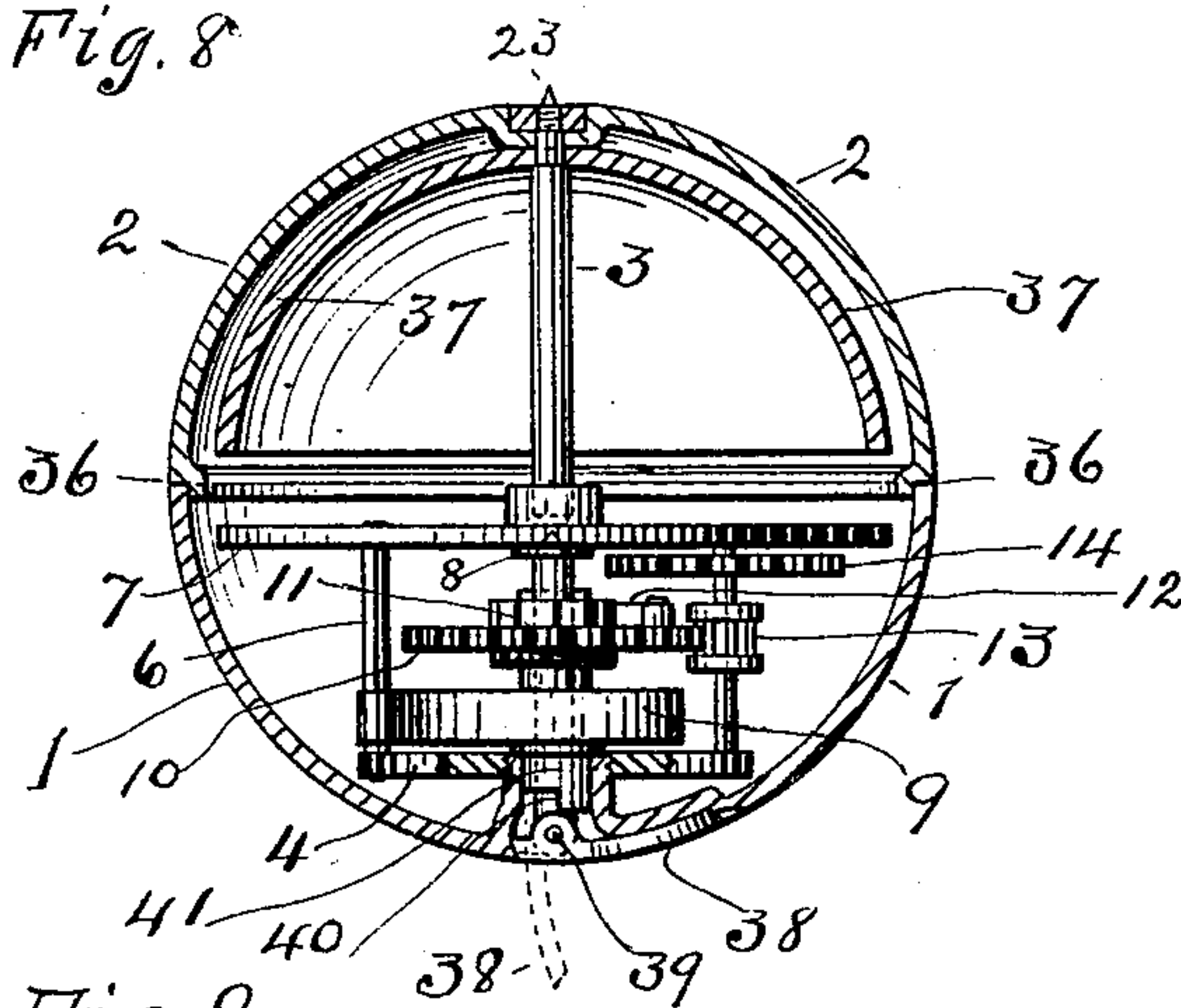
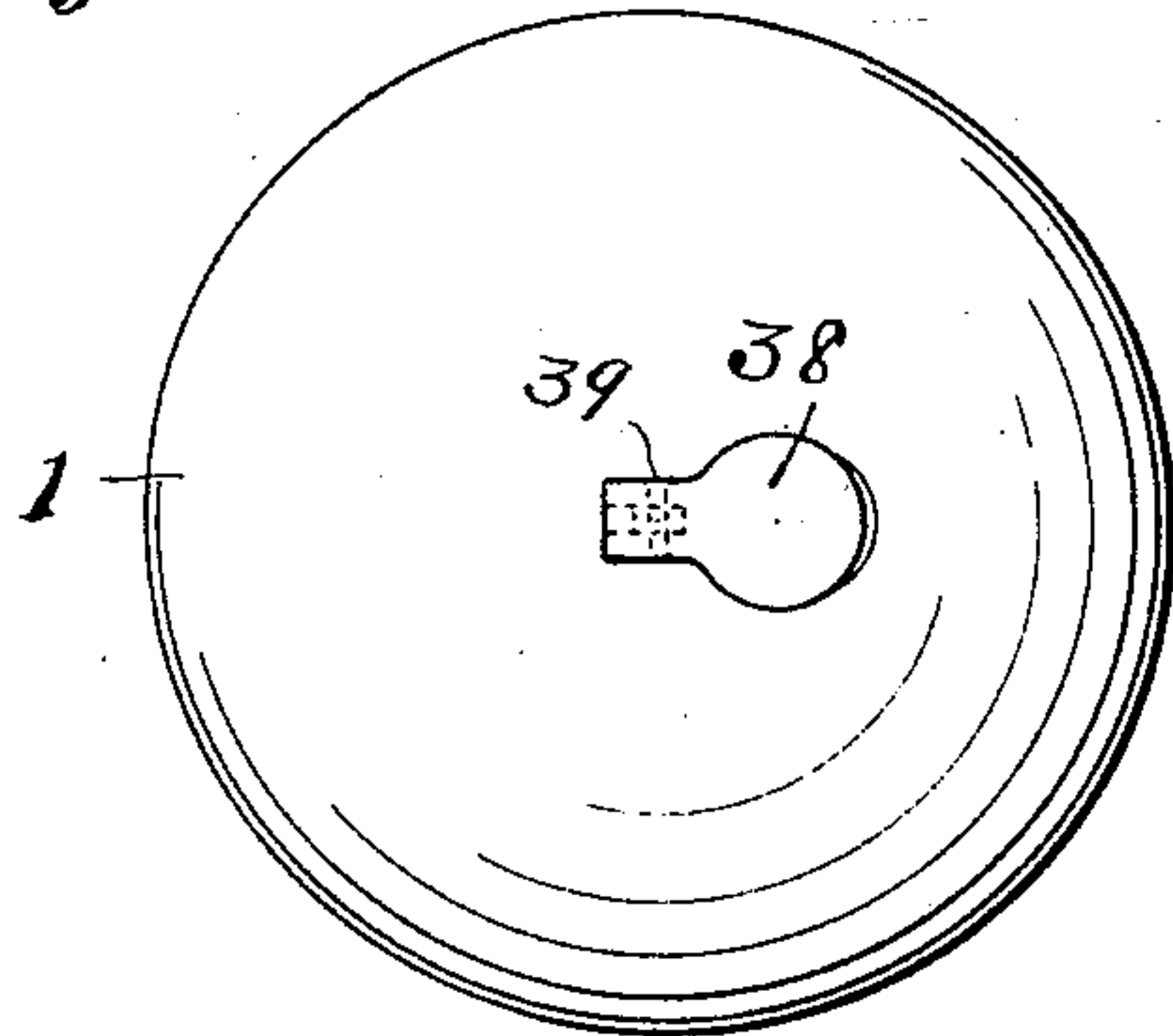


Fig. 9



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UNITED STATES PATENT OFFICE.

LEROY S. BUFFINGTON, OF MINNEAPOLIS, MINNESOTA.

BURGLAR-ALARM.

SPECIFICATION forming part of Letters Patent No. 521,151, dated June 12, 1894.

Application filed December 26, 1893. Serial No. 494,676. (No model.)

To all whom it may concern:

Be it known that I, LEROY S. BUFFINGTON, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented a certain new and useful Improvement in Burglar-Alarms, of which the following is a specification.

My invention relates to devices designed to operate automatically to ring a bell or otherwise produce sound as a warning.

The object of the invention is the production of a simple and cheap device adapted, upon being turned over, as by the opening of a door or window, to ring a bell carried by it or explode a fulminating-cap and thereby make a noise.

While the primary object of the invention is that of an alarm, slight modifications only are required to make of it a mere toy.

Broadly stated the invention consists in providing within a hollow ball or other body capable of being easily turned from an initial position to another opposite or nearly opposite its static position and thereby causing the operation of suitable weights, springs, gearing and other devices contained therein, whereby a bell will be sounded, a cap exploded, or a noise produced by other suitable means. Means for accomplishing this result are illustrated in the accompanying drawings and will be hereinafter sufficiently set forth; but I do not wish to confine myself to the specific means shown and described and will in the appended claims summarize the invention for which protection is sought.

In illustration of a practical means of carrying out my invention, I have shown in the accompanying drawings certain devices adapted to accomplish the ends suggested, as follows:

In Figure 1, a side elevation of a two-part spherical shell containing the operating devices of the improvement; in Fig. 2, a central vertical section of the incasing body, with the interior mechanism shown in elevation; in Fig. 3, a view similar to Fig. 2 inverted and in position to sound an alarm; in Fig. 4 a plan view of the bell-striking devices shown in Figs. 2 and 3; in Fig. 5, a plan view on the irregular broken line $x-x$ of Fig. 3; in Fig. 6, a section similar to Fig. 3, but at right angles thereto, showing devices that may be used in con-

nection with, or independently of, the bell-striking mechanism of the former; in Fig. 7, a plan view of a modified construction; in Fig. 8, a central section of Fig. 7, showing the operative parts in elevation, and in Fig. 9, a view of the ball of Fig. 7 inverted.

In such drawings 1 and 2 represent respectively upper and lower hollow hemispherical bodies, and in Figs. 1 and 2 the device is shown in normal position and ready to operate upon being inverted. These parts 1 and 2 are connected by means of a stem 3 screwed into or otherwise secured to the part 2 and having its opposite end journaled in a plate 4 so that it may turn. This plate is attached by a screw 5, or otherwise, to the part 1. On the plate 4 are posts 6 which have their opposite ends secured to a disk 7. A pin 8 or equivalent device, in or on the stem 3 next the plate 7, and between it and the plate 4, serves to lock the parts 1 and 2 together while permitting either to revolve when the other is stationary.

The operative devices carried in the interior may be of any suitable character; those shown (being similar to such as are commonly used in alarm-clocks) are as follows: A spring 9 has its inner end attached to the stem 3 and its outer end to one of the posts 6, or otherwise secured upon or to the plate 4. On the stem 3 is a spur-wheel 10 arranged to turn on the stem and next it is a ratchet-wheel 11 engaged by a dog 12 carried by the spur-wheel 10, the ratchet being fast to the stem 3. The spur-wheel 10 is in mesh with a pinion 13 on an arbor that carries a scape-wheel 14. By these means the turning of the hemisphere 1 in direction indicated by the arrow Z of Fig. 1 will wind the spring 9.

A pallet 15 attached to an arbor 16 that is journaled in the plates 4 and 7, engages the spur-wheel 14. The same arbor, or axis, carries the bell-striker 17 by means of a suitably bent rod or wire 18 which extends to a point near the opposite side of the ball where it is engaged by a pin 19 projecting from a weight 20 that is carried by a rod 21 pivoted to lugs 22 formed on or attached to the plate 7. This locking of the rod or lever-arm 18 by the pin 19 (as in an alarm-clock mechanism) prevents the operation of the working parts when the position is as shown in Figs. 1 and 2. Upon

inverting the device, however, the weight 20 will descend by gravity, as indicated in Fig. 3, when the arm 18 of the bell-hammer will be free to vibrate over the top of the pin 19 so that the escapement devices may operate to vibrate the hammer 17 and cause it to strike the inclosing case, or bell, and produce a succession of sounds. Thus it will be obvious that all that is necessary to cause the alarm to sound, after the spring is wound-up, is to invert the ball. To maintain it in position as shown in Figs. 1 and 2, short lugs 23 may be provided; and when it is rolled over, the weight of parts in the portion 1 will cause that portion to remain below. And it will be also obvious that the specific form and character of gearing, springs, &c., are immaterial, provided they are so arranged that the inversion of the device will cause them to be set in operation. The same mechanism, or a similar mechanism, may be used to cause the striking of hammers to explode fulminating-caps placed in the ball, and this may be done in conjunction with a bell-hammer in proper relationship in the same ball. This idea is illustrated in Fig. 6, in which the spur-wheel 10 has on its upper surface an inclined lug 24 arranged to engage the under surfaces of the lateral arms 25 of trips 26 that are pivoted to lugs 27 on the plate 4 and to raise the trips when the spur-wheel rotates. The upper ends of the trips 26 engage lugs 28 on the shorter lever-arms of hammers 29 that are fulcrumed at 30 to the plate 7. Springs 31 secured to the latter plate bear against curved surfaces 32 at the under side of the lever-arms of the hammers 29, and when the turning of the wheel 10 swings the trips 26 on their pivots such movement throws the hammers past their centers of resistance and the springs 31 then cause them to strike—that is, throw them from the position shown at the left to that shown at the right in Fig. 6. Detonating caps 33 on seats 34 on the plate 7 are held in place by clasps 35 and in position to be struck by the hammers and exploded.

In the construction so far described the shell is in two parts, so connected as that one may turn while the other is stationary.

In Figs. 7, 8 and 9 a modification is shown in which the upper and lower portions of the shell are permanently united, as at 36, and a bell 37 is sustained by the stem 3 independently of the shell. The interior operative mechanism may be the same as in the earlier figures, and the winding of the spring may be done by means of a key 38, fitting in a slot in the shell and connected by a pin 39 a short distance from its end to the stem 3; so that in normal position the key will lie as shown by full lines in Figs. 8 and 9 and when turned out for use it will be as shown by dotted lines in Fig. 8. When in the latter position the spring may be wound by holding the ball sta-

tionary and turning the key, for the rear end of the key is thus made to engage a shoulder 40 formed on a short sleeve 41 attached to the stem 3. The striking mechanism in this construction may be the same as in the former. In Fig. 8, portions of the mechanism are omitted to avoid confusion of lines. In the latter construction the shell should be perforated to avoid muffling of the sound of the internal bell. This may be done by providing letters cut through the shell and forming words, such for instance, as the words "Alarm ball."

In using the device (whether of one or the other construction) it can be set near a closed door so that upon the opening of the door the ball will be rolled over and the bell made to sound an alarm. In using it in connection with a window a string or wire with a loop around the base projections 23 would roll the ball when the window was opened.

Having described my invention, what I claim is—

1. The combination with a globular body formed of connected hollow hemispherical portions; of an internal clock-work mechanism, including a stem for winding it, a gravitating weight for locking it when the body is in normal position and releasing it upon inversion of the body, and a bell-striking device for sounding an alarm upon the inversion of the body and release of such mechanism by the gravitation of said weight, substantially as set forth.

2. In combination, two opposite hollow hemispherical bodies placed mouth to mouth, a stem connecting them, suitable clock-work devices arranged to be wound up by the turning of said stem, and a gravitating weight for locking such mechanism when in one position and releasing it when in another, substantially as set forth.

3. In combination, two opposite hollow bodies placed mouth to mouth, a stem connecting them, an internal clock-work mechanism arranged to be wound up by the turning of one of said bodies while the other is stationary, and a locking device therefor operating by gravity, substantially as set forth.

4. In combination two hollow hemispherical bodies arranged mouth to mouth, connected by means permitting the one to turn while the other is stationary, a clock-work mechanism contained therein and arranged to be wound up by turning one of said bodies while the other is stationary and to reverse the movement of such body when released; means for locking the mechanism when in one position and freeing it when inverted; and a striking device arranged to be operated by such clock-work, substantially as set forth.

LEROY S. BUFFINGTON.

Witnesses:

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