

Nov. 11, 1947.

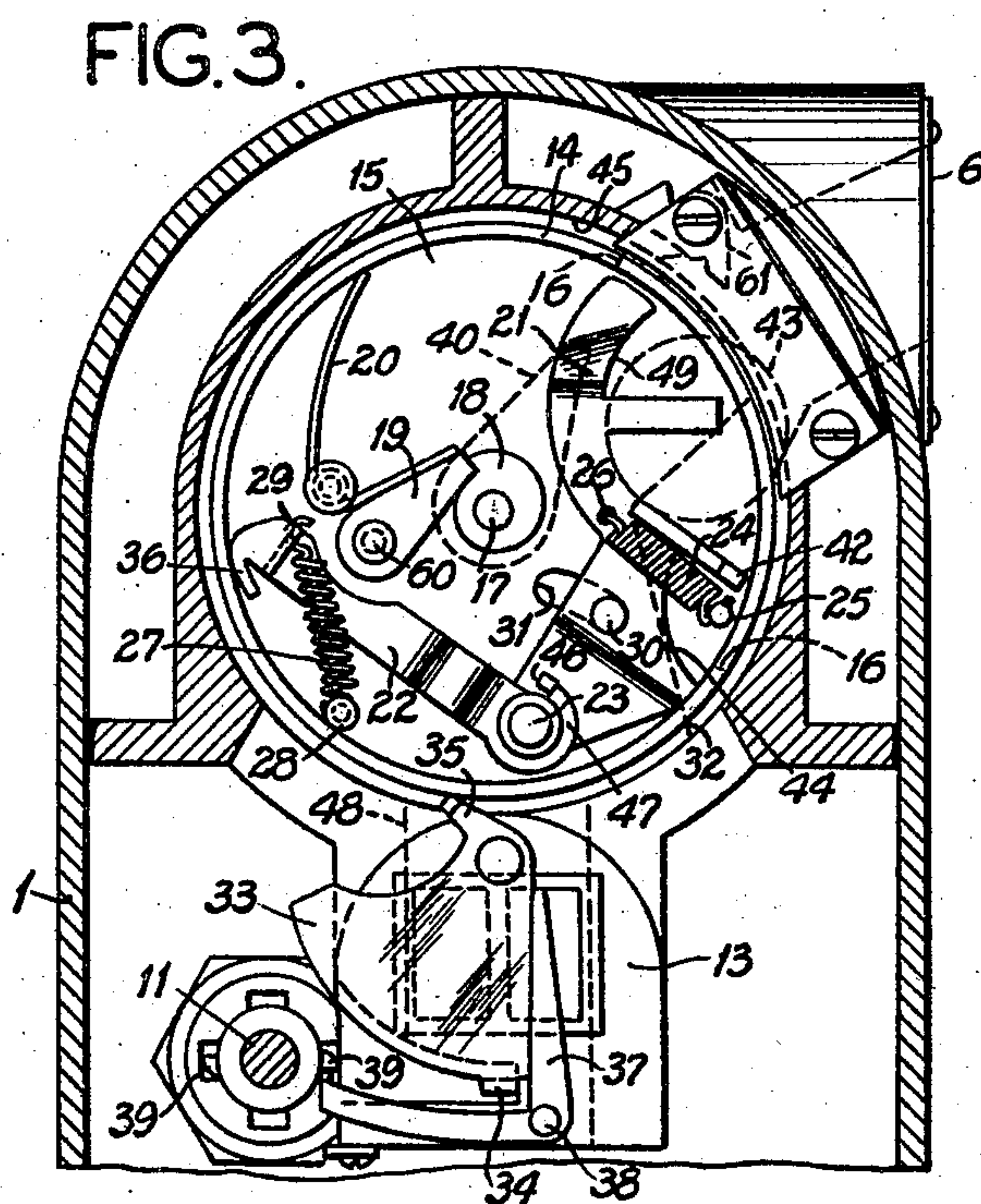
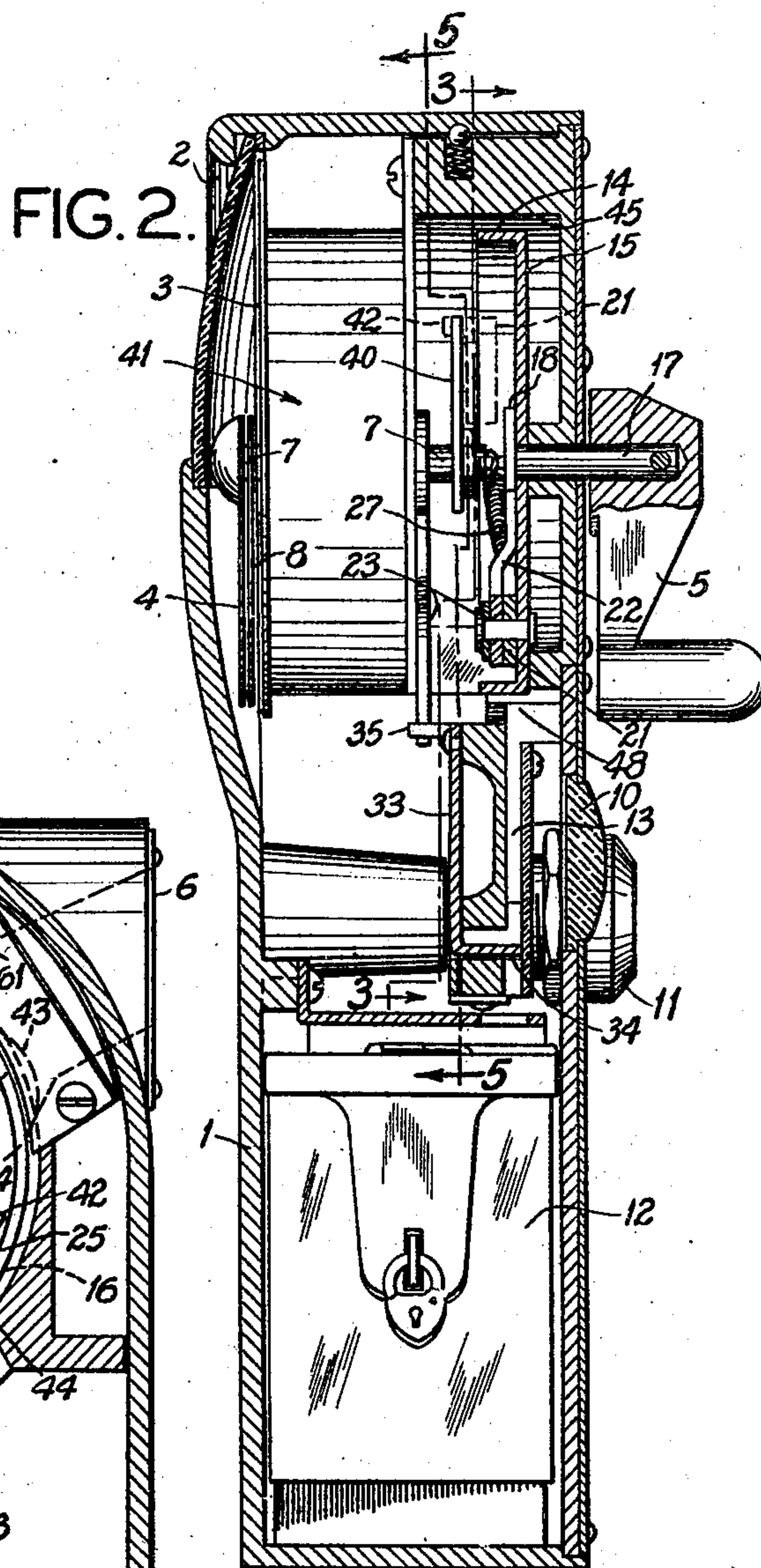
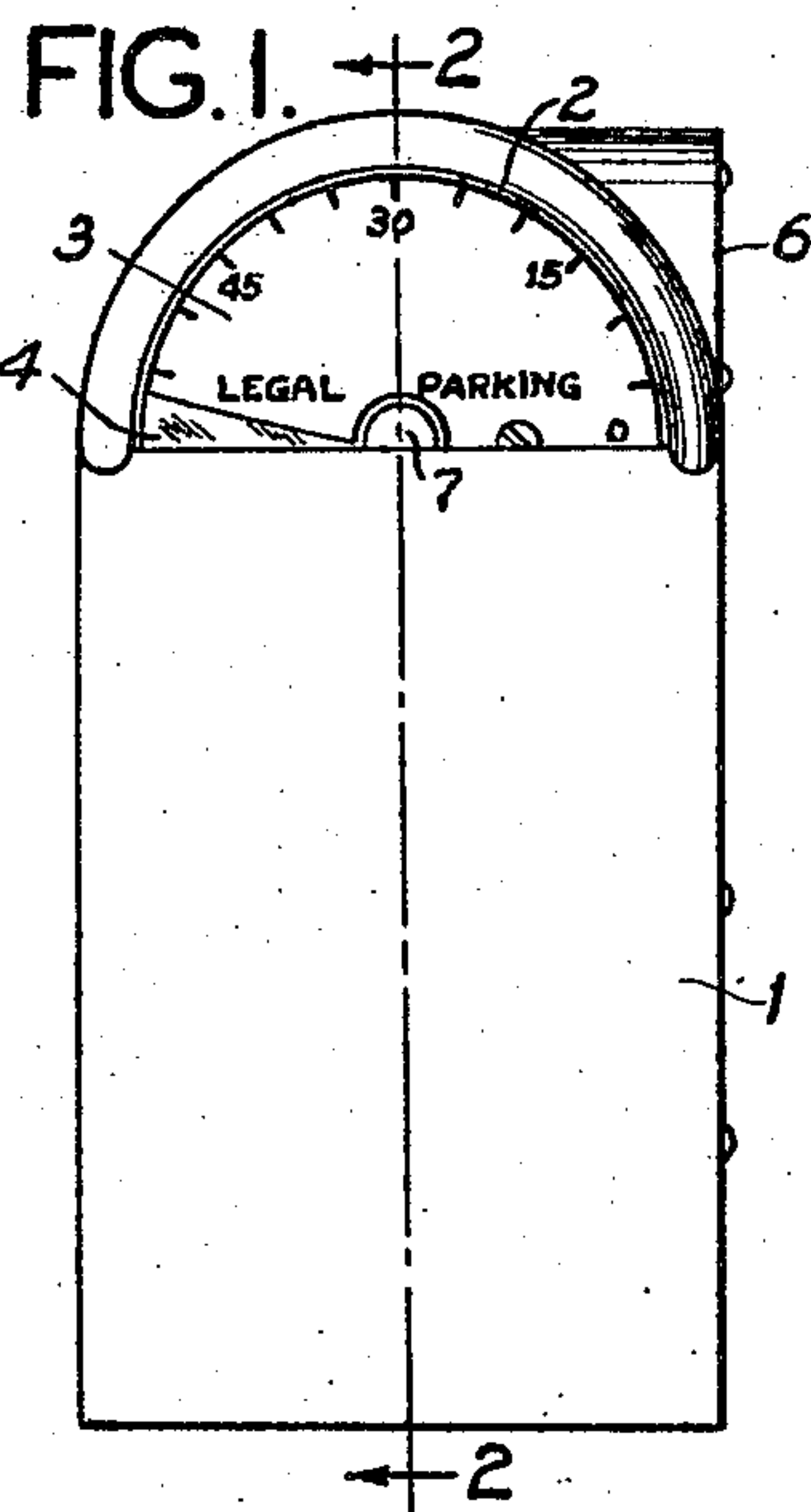
M. H. RHODES

2,430,583

TIMING DEVICE

Original Filed Aug. 1, 1940

3 Sheets-Sheet 1



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FIG. 4.

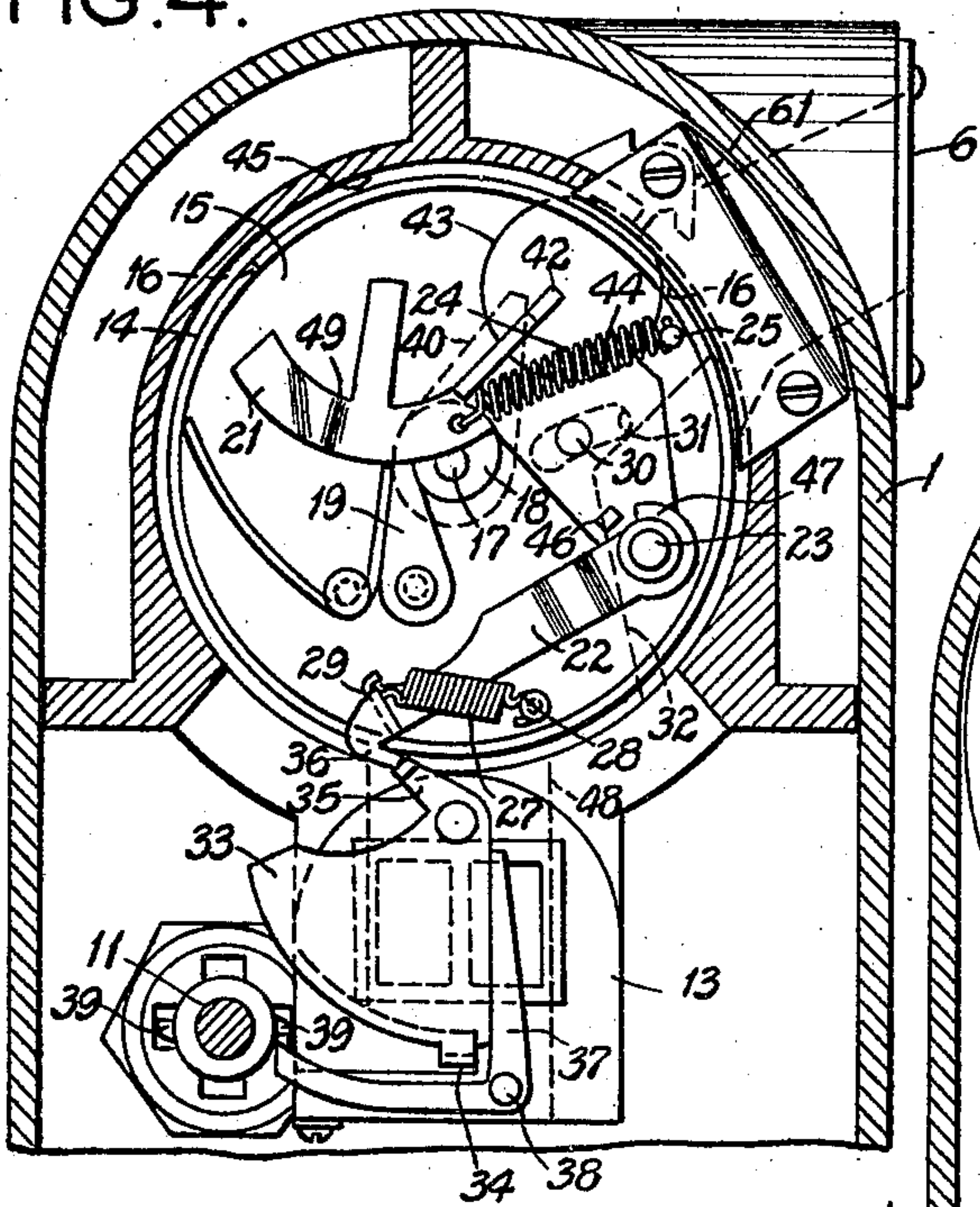


FIG. 5.

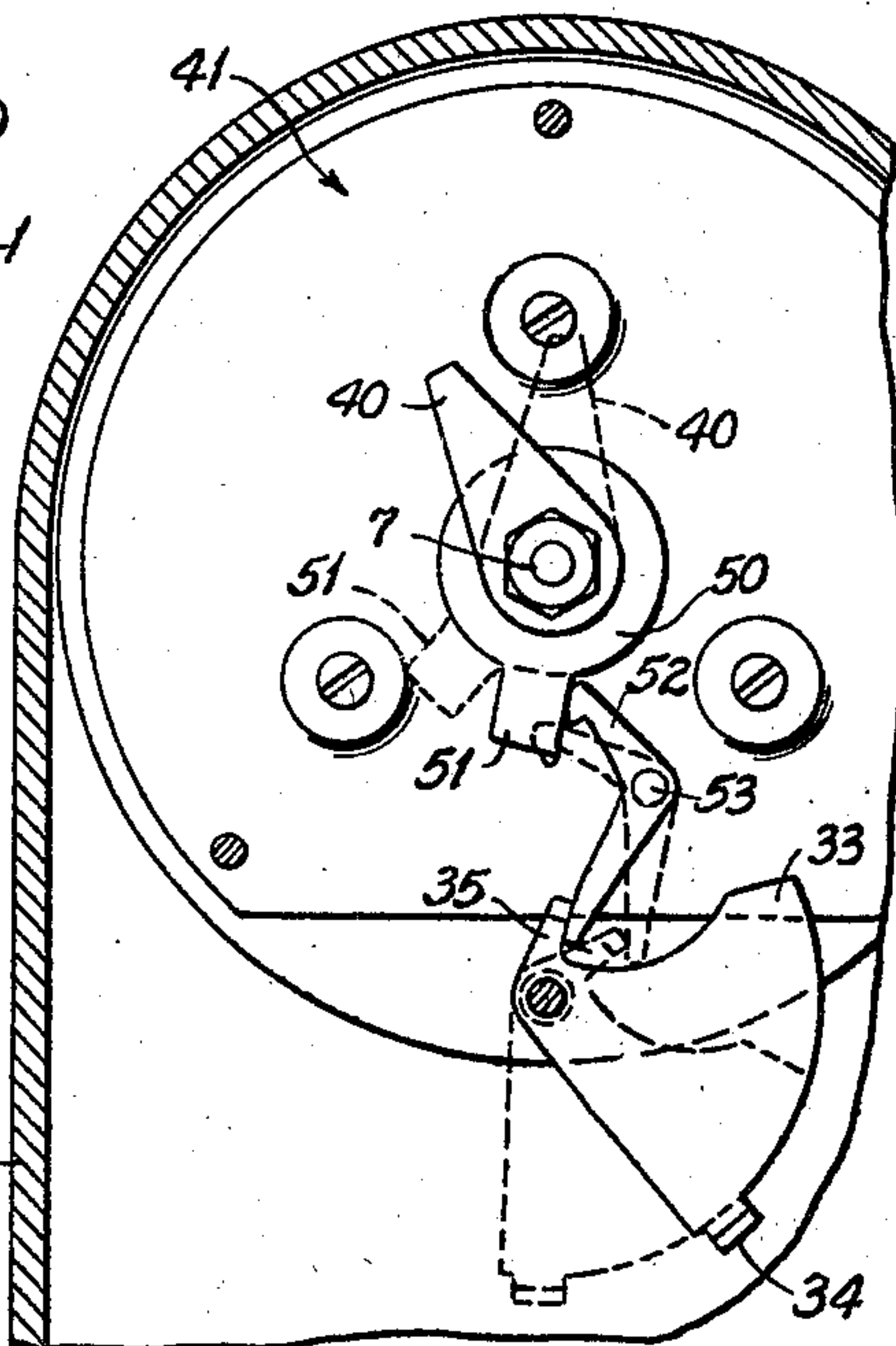
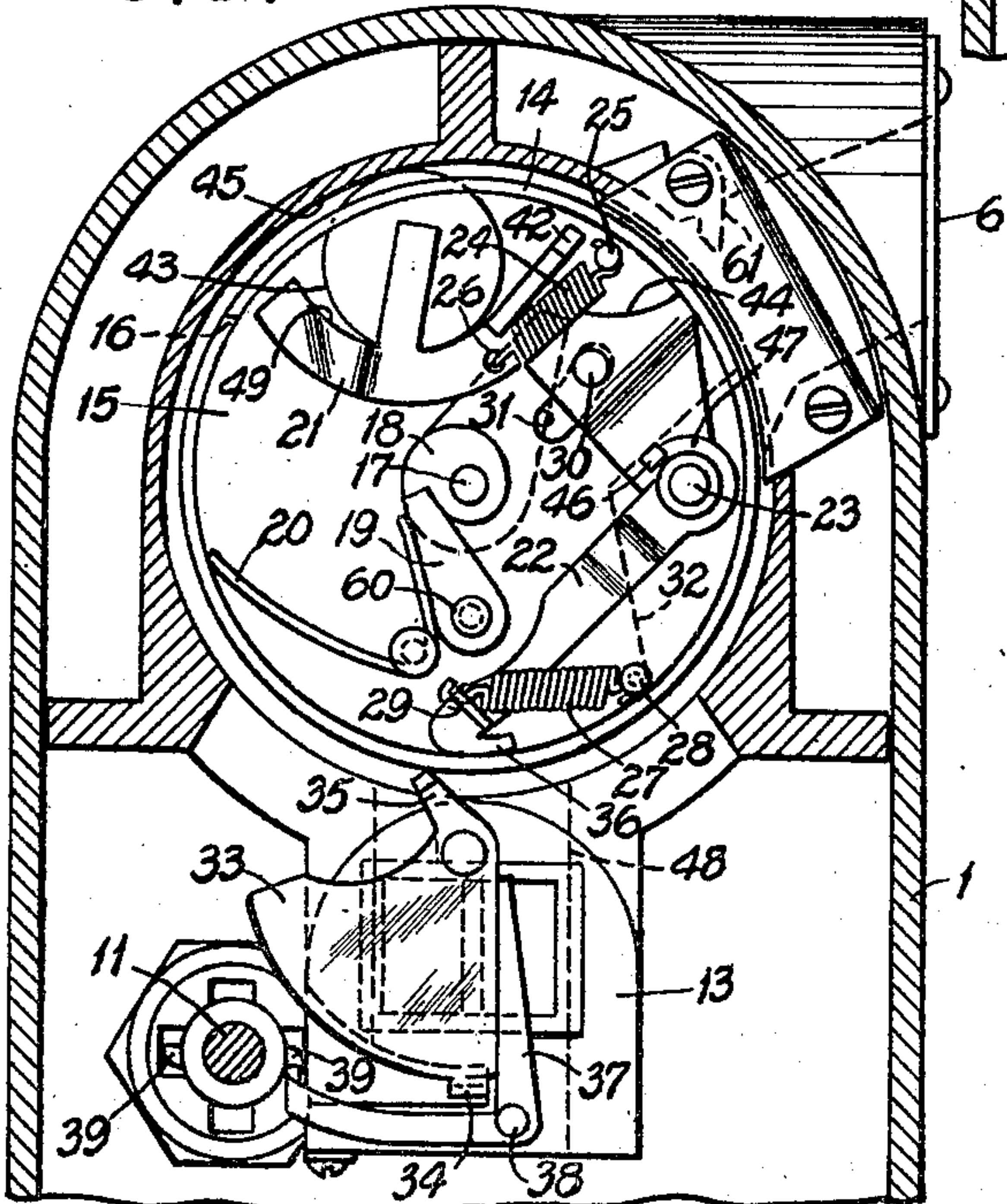


FIG. 6.



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FIG. 7.

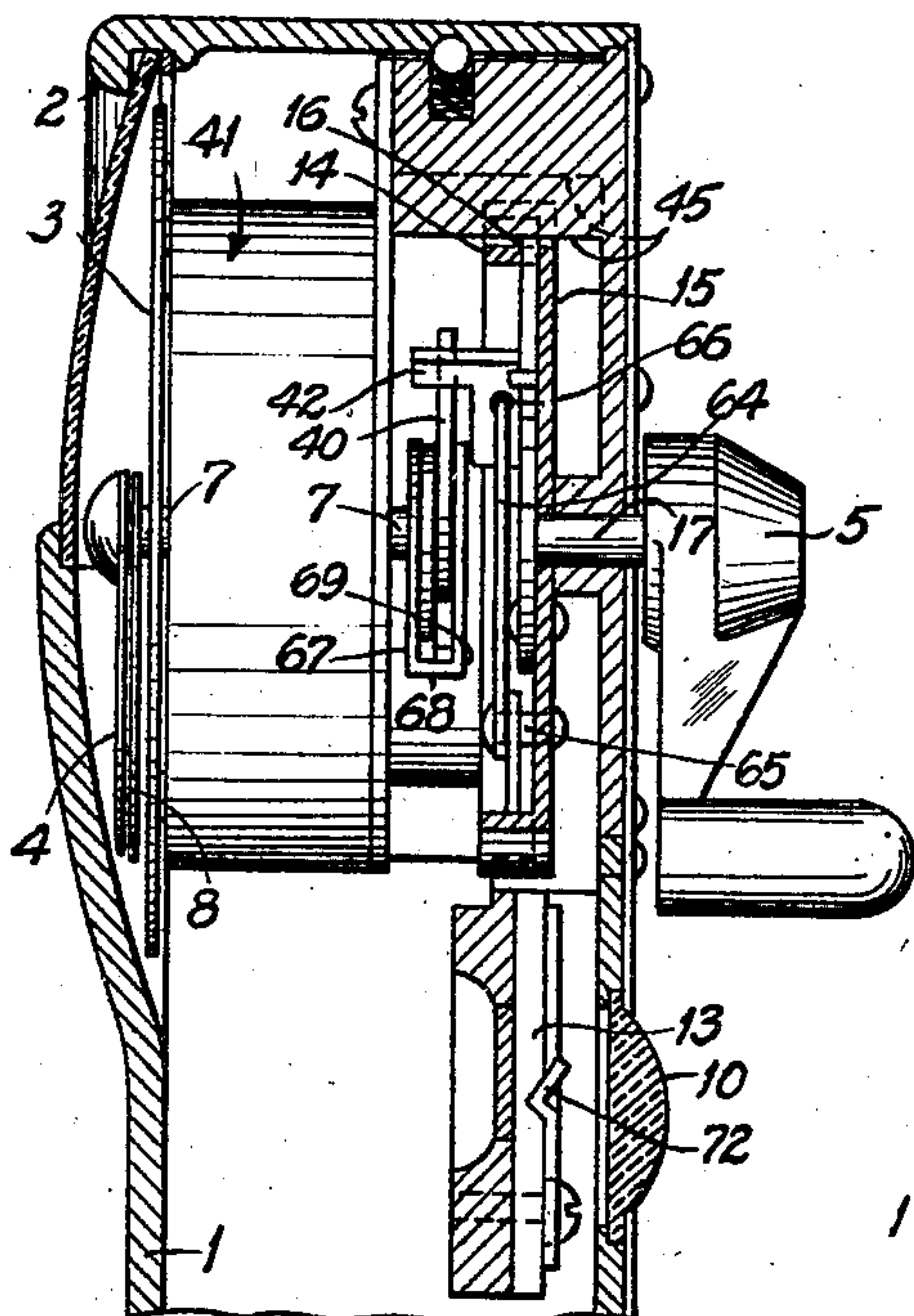


FIG. 8.

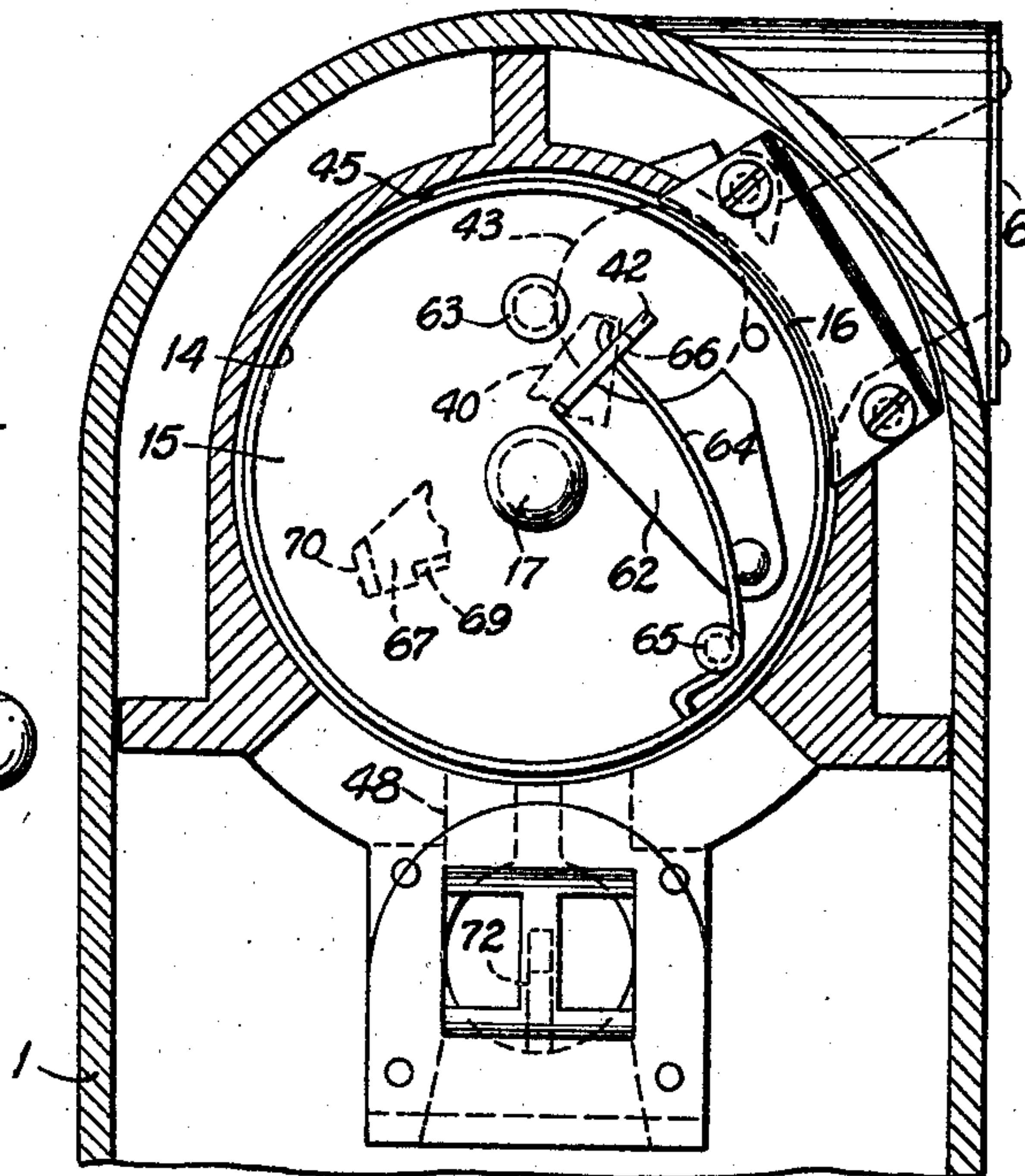


FIG. 9.

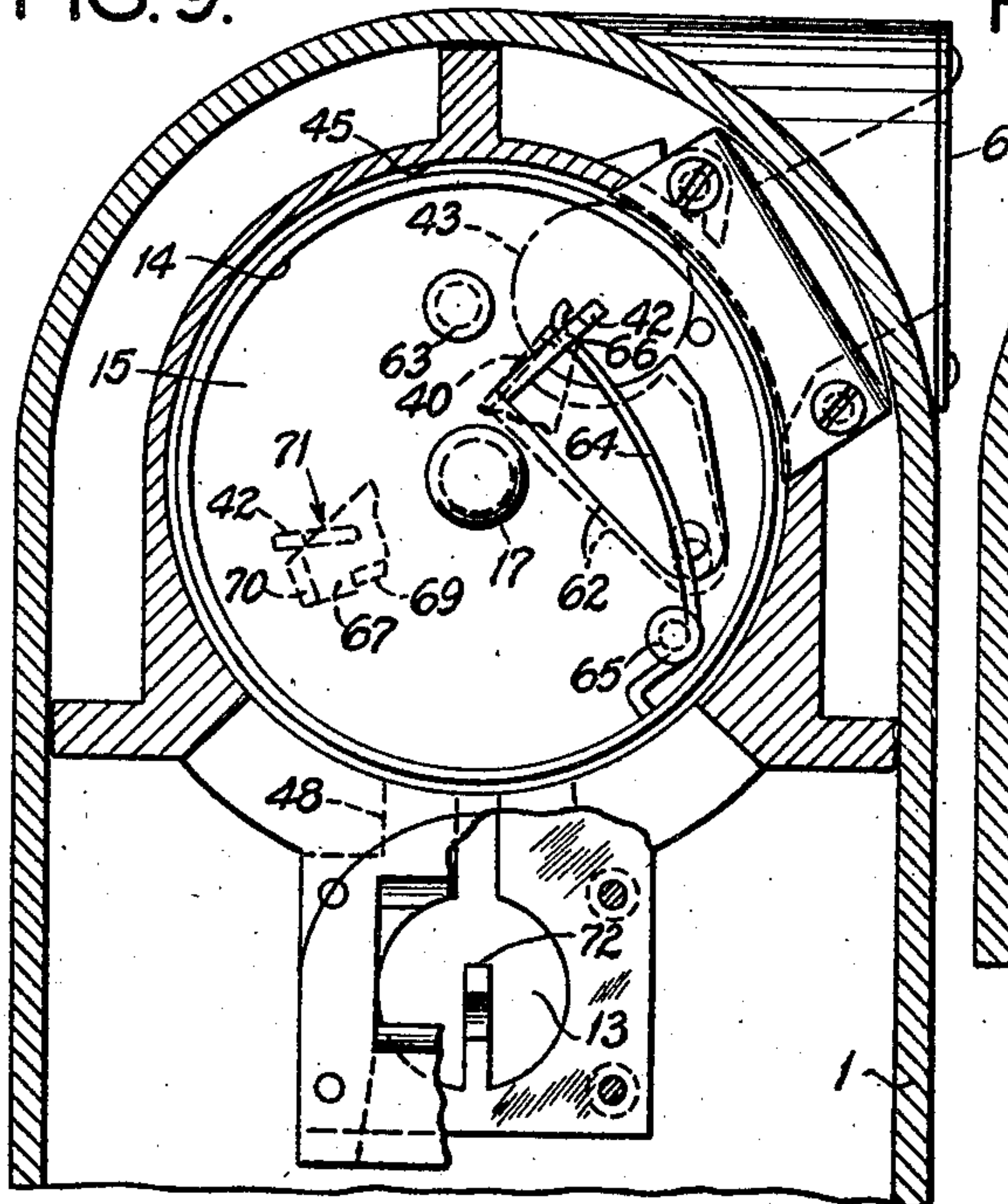
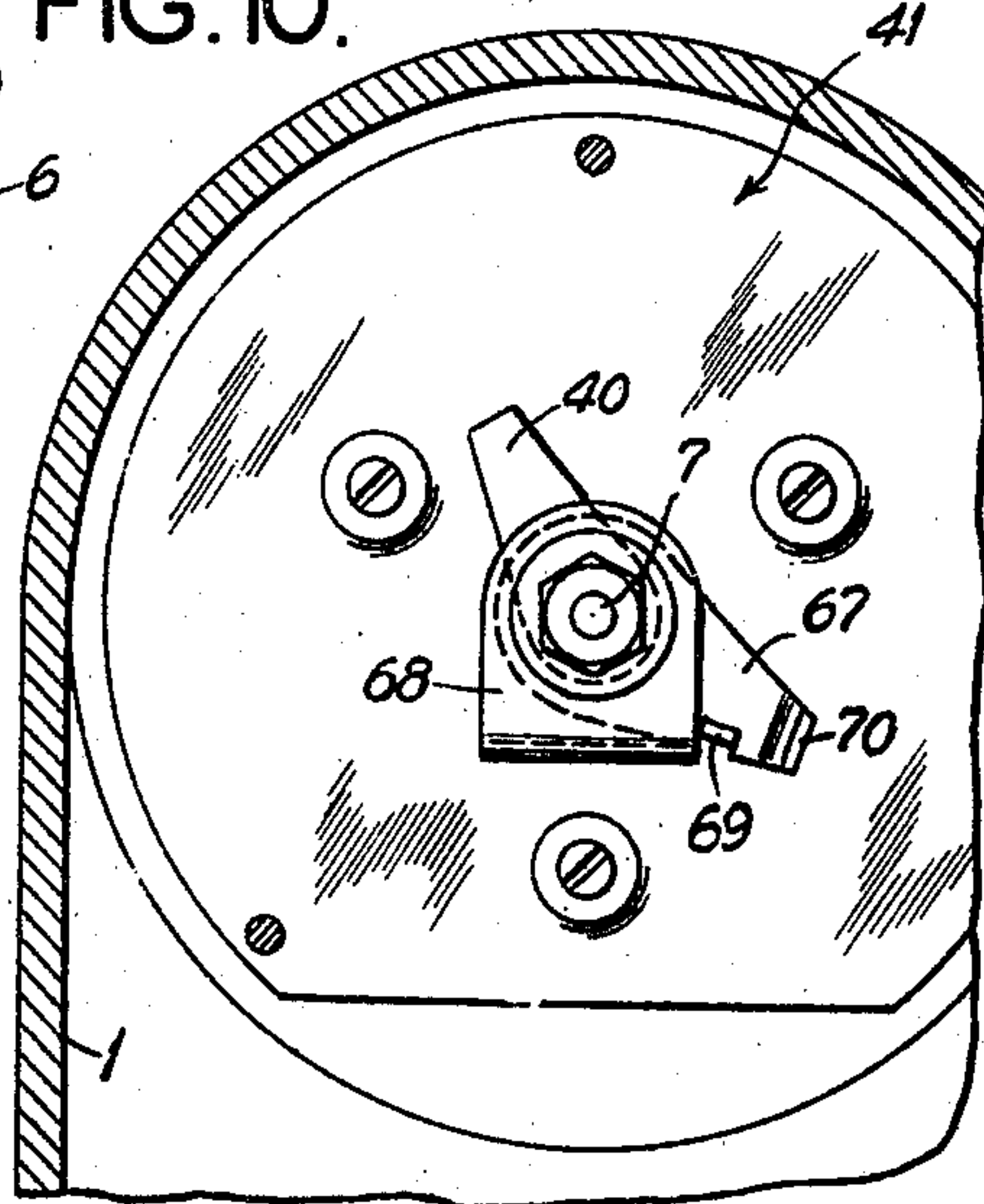


FIG. 10.



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2,430,583

TIMING DEVICE

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Original application August 1, 1940, Serial No. 349,119. Divided and this application October 25, 1943, Serial No. 507,639

5 Claims. (Cl. 194—72)

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This invention relates to timing devices, and with regard to certain more specific features, to coin-controlled timing devices for indicating the passage of a purchased length of time, as for parking automobiles or the like.

This application is a division of my copending application Serial Number 349,119, filed August 1, 1940, which application issued as Patent No. 2,369,688, dated February 20, 1945. An application Serial No. 734,650 was filed March 14, 1947, as a division of the present application.

Among the several objects of the invention may be noted the provision of a coin controlled timing device of the class described which is adapted to indicate at all times what portion of a purchased length of time has passed; the provision of a device of the character indicated which provides different periods of time upon the deposit of coins of different values; the provision of a device of the class described which is so constructed as to require re-setting of the indicating portion of the device to a starting or zero point in order for the operator to obtain the full value of a coin; and the provision of a device of the class described which is substantially fool-proof in operation, simple in construction, and which may be economically made. Other objects will be in part apparent and in part pointed out hereinafter.

The invention accordingly comprises the elements and combinations of elements, features of construction, and arrangements of parts which will be exemplified in the structures hereinafter described, and the scope of the application of which will be indicated in the following claims.

In the accompanying drawings in which are illustrated several of the possible embodiments of the invention,

Fig. 1 is a front elevation of a device embodying the present invention;

Fig. 2 is a section taken along the line 2—2 in Fig. 1, but on an enlarged scale;

Fig. 3 is a section taken along the line 3—3 in Fig. 2;

Fig. 4 is a section similar to Fig. 3, but showing a different position of the mechanism;

Fig. 5 is a section taken along the line 5—5 in Fig. 2;

Fig. 6 is a section similar to Fig. 3, but showing a still different position of the mechanism;

Fig. 7 is a partial section similar to Fig. 2, but showing an alternative embodiment of the invention;

Fig. 8 is a section similar to Fig. 4 of the Fig. 7 embodiment;

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Fig. 9 is a section similar to Fig. 8, but showing the mechanism in different position; and

Fig. 10 is a section similar to Fig. 5 of the alternative embodiment.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

The device of the present invention is particularly adapted for use as a so-called "parking meter" which is usually installed in connection with designated parking spaces for automobiles along the curbs of city streets. The timing device itself is usually mounted on a post on the curb in proximity to the designated parking space. The device is adapted to receive a coin from a person parking his automobile in the designated space, and has means thereon for indicating a duration or period of time corresponding to the length of time a person is entitled to park in the designated space in return for the value of a coin presented.

One of the principal features of the present invention is that it indicates progressively the gradual expiration of the purchased time interval, as determined by the value of a coin initially deposited in the device. This indication is readily visible at a distance, which greatly facilitates the enforcement of parking ordinances and assures receipt by the governmental agency of the full parking fees to which it is entitled.

In addition, the present invention assures the governmental municipality that it will receive full value for the time during which the meter registers legal parking, and that any attempt to cheat the meter will result in the would-be cheater cheating himself, rather than the municipality. Another new and valuable feature is provided the municipality and the user in that a user of this device may set the time for a lesser time than the full time period prescribed by ordinance. This may increase the revenue to the municipality, and offers certain advantages to the user. In attempting to set previous meters for short periods, confusion has resulted. The present device may be constructed to provide different periods of time upon the deposit of coins of different values.

Referring now to the drawings, Fig. 1 shows a device in which numeral 1 indicates a rectangular casing which has a semi-circular top portion. The top part of the front of the casing 1 has a semi-circular opening 2 preferably holding a glass. Back of this is a scale 3 upon which are figures to indicate the amount of legal parking time remaining. In front of this scale and movable thereover by the clockwork mechanism is a semi-

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circular shield 4 which, upon initiating operation of the device, is rotated until it is substantially invisible. Initiation of the operation of the device is carried out by means of a handle 5 (see Fig. 2) which operates the setting mechanism upon the insertion of a coin into the coin slot 6. Shield 4 is attached to a shaft 7 which is rotated by the clockwork mechanism.

The back of the device is provided with a viewing glass 10, arranged opposite the place where the coin is held during legal operation of the device, and also with an appropriate lock such as a screw lock 11.

Referring now to Fig. 2, the device has an appropriate coin receptacle 12 for permanent retention of coins. The receptacle 12 is preferably removable from the device so the collector can merely replace it with an empty box and take the coin containing receptacle to a central collecting point. If the receptacle 12 is of the type which automatically locks upon removal from the device, accurate records of receipts from a specific device may be kept, and fraudulent returns by the collector are made difficult. A temporary coin receiver 13 is connected to receptacle 12 and opposite receiver 13 is located a viewing glass 10 which may preferably be constructed as a magnifying glass.

Fig. 3 shows the device ready for the reception of a coin. Numeral 14 indicates a circular wall or cylinder which is preferably formed integrally with a plate 15, as by die casting, and acts to prevent insertion of a coin except at the intended place. The cylinder 14 is not a complete cylinder, it being provided with a relatively wide opening 16. The plate 15 is rotatably mounted upon a shaft 17, upon which is also mounted the handle 5. The opposite end of shaft 17 carries cam 18 which cooperates with member 19, mounted on plate 15 by pin 60, to cause rotation of the plate 15 and cylinder 14 in one direction, but not in the other. Spring 20 mounted on plate 15 retains member 19 in position for cooperation with cam 18. Movably mounted on plate 15 are arms 21 and 22 by means of rivet 23. Spring 24, attached to plate 15 by means of rivet 25 and to arm 21 at opening 26, positions arm 21 in the proper relationship to the remainder of the device. Similarly, arm 22 is positioned by spring 27 attached to plate 15 with rivet 28 and to arm 22 by opening 29. Spring 24 is stronger than spring 27 and they are adjusted so that in the Fig. 3 position spring 27 is elongated. Projection 30 on arm 21 which projects through opening 31 in plate 15, controls and limits the movement of arm 21 in cooperation with wedge 32 located between plate 15 and the back of the device. Located below plate 15 is coin holder 33 adapted to temporarily suspend the coin opposite viewing window 10 prior to deposit thereof in coin box 12. The coin is held by bar 34 which projects thereunder. Projecting portion 35 of holder 33 cooperates with hook 36 on arm 22 to drop the coin when the device is operated to re-set it. Positioned adjacent the member 33 is V-shaped element 37, mounted on pin 38. Element 37 cooperates with cams 39, located on the screw lock 11, to release the coin from holder 33.

In front of the setting mechanism is located a triangular shaped dog 40. It is mounted on the shaft 7 which carries the clockwork mechanism indicated generally at 41. The dog 40 winds the clockwork mechanism upon initiation of operation of the device by the plate 15 and members assembled therewith. Lug 42 (see Fig. 2) on arm

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21 is positioned to contact dog 40 under certain conditions of operation, and carry out the winding operation.

The operation of the device is as follows:

When the plate 15 assembly is in the position shown in Fig. 3 with the opening 16 opposite the coin chute 6, it is ready to receive a coin 43 which is inserted through the coin slot 6 and drops into the semi-circular segment 49 of arm 21, as indicated. A movable coin-retaining member 61 prevents removal of the coin after insertion. If the handle 5 is now rotated, carrying with it plate 15 and assembly, projecting portion 30 attached to arm 21 contacts wedge 32 tensioning spring 24 and moving arm 21 toward the center of the assembly. This permits the coin 43 to assume by gravity the position shown in Fig. 4, where it is held between the minor semi-circular segment 44 of arm 21, and the interior wall 45 of the case 1. This retains the tension in spring 24, while at the same time the tension in spring 27 has been released because the pin 46, attached to arm 21, which imposed the tension upon spring 27 through arm 22 as shown in Fig. 3, by the movement of arm 21, has been moved away from the projecting portion 47 of arm 22. With the coin in position as shown in Fig. 4, lug 42 on arm 21 is brought into position to contact dog 40, as shown in Fig. 4. Releasing the tension in spring 27 has dropped arm 22 to the position likewise shown in Fig. 4, where it contacts projecting portion 35 of holder 33 by means of hook 36. Further rotation of the handle 5 and the plate 15 assembly trips the coin holder 33 to drop the coin held temporarily before window 10 into the coin box 12, and likewise begins winding the timing mechanism. Continuing rotation of the handle 5 until the arm 22 has passed holder 33, allows holder 33 to fall back into position by gravity, but continues winding the clockwork mechanism. This winding continues until the opening 16 is brought opposite the coin slot 43, which connects with the temporary coin receiver 13. When the coin 43 reaches this position, it is discharged into the temporary coin holder, releasing the tension on spring 24, so that the device is again in the condition shown in Fig. 3. In this position rotation of the handle 5 without a coin will not operate either the winding mechanism through dog 40 or the coin-releasing mechanism of holder 33, since lug 42 on arm 21 clears dog 40, and hook 36 on arm 22 clears projecting portion 35 on holder 33.

As soon as the winding of the clockwork mechanism, by means of dog 40, ceases, as by the operator releasing handle 5 or by the dropping of coin 43 into the temporary coin receiver 13, the clockwork begins to drive the shield 4 over scale 3. The winding mechanism and the clockwork are adjusted so that sufficient winding is given by the rotation of dog 40, as described above, to operate the shield 4 over the scale 3 for the full time or any portion of time purchased.

If it is attempted to rotate the plate assembly 15 only part way, thereby only partially winding the clockwork mechanism with the intention of allowing the device to operate for a time, then to return and again partially wind the device or to complete the winding operation, thus obtaining an additional period of time for the money deposited, no such operation is permitted by the instant device, although it is permissible to release the handle for a comparatively short period of time, and then continue the winding opera-

tion. This is accomplished by the shape of the arm 21, and associated mechanisms.

This construction also provides the user with a new means to set the time for a shorter period than the full time where said user is desirous of staying a very short period. Users have been known to become confused in attempting to operate other devices for shorter time periods.

It will be seen that this new method not only intercepts the would be cheater but eliminates confusion to some of the users and it provides greater revenue to the municipality than previous meters that had to be set to full time before an "illegal warning flag" would clear.

Assuming now that winding of the device is discontinued after the clockwork is partially wound, and not resumed after a comparatively short delayed period of time, the clockwork mechanism will operate during this period, driving the shield 4 and the plate 15 assembly by means of lug 42 in the opposite direction. This delayed time period is an improvement over similar previous devices where instantaneous action resulted in the user being cheated and confused by such instances as the hand slipping off and losing the coin often before any time was secured. Coin 43 is in frictional engagement with interior wall 45 and this friction holds the coin stationary while the clockwork moves arm 21. After a comparatively short period of time the coin will pass from the portion 44 of arm 21 into the portion 49. Portion 49 is much deeper than portion 44 and serves to accommodate the coin without imposing tension upon spring 24. Releasing this tension of spring 24 removes lug 42 from contact with dog 40, so that a subsequent attempt to complete the operation of winding is defeated, since lug 42 does not contact dog 40, and turning handle 5 only results in the coin being rotated into a position to be discharged into the chute 48, and thence into temporary receiver 13. From this it is clear that the attempt to cheat the meter has resulted only in the perpetrator cheating himself, since he obtains only the portion of the time which has been wound on the meter before he discontinued winding.

It is permissible to discontinue winding for a comparatively short time, however, since it may be resumed at any time before operation of the clockwork mechanism has released lug 42 from dog 40 through the tension in spring 24.

Referring now to Fig. 5, a member 50 is mounted on shaft 7 to be rotary with the clockwork mechanism. This member has a projecting portion 51 which cooperates with a V-shaped member 52 rotatably mounted on a pin 53 to operate coin holder 33 through projection 35. The projection 51 is positioned so that upon expiration of the purchased parking time, this projection contacts V-shaped member 52, and moves the temporary coin holder 33 to drop the coin into the coin box 12. The coin therefore drops into temporary coin receiver 13 upon initiation of operation of the device, and is dropped therefrom into coin box 12 as soon as the purchased time has been exhausted. The presence of the coin, therefore, which is visible through window 10, acts as a signal to the patrolling officer and to the public that the device is measuring purchased time, rather than overtime.

Practically as soon as the parker commences to turn the crank and before lug 42 contacts dog 40 to set any time, the previous parker's coin is automatically dropped into the coin box if it has

not already dropped upon occurrence of one of the events previously described. This dropping of the previous coin sets up an indication to the patrolling officer, to the parker, and to the public.

One coin does not contact another in the winding mechanism, so that there is no possibility of two coins telescoping. The presence of the window 10 on the back of the device operates as a signal to the patrolling officer through the presence or absence of a coin showing therethrough.

The present device also effectively prevents cheating by the parker through an incomplete winding of the apparatus. Releasing the handle for a short time, in the interest of convenience, does not result in a loss of the coin, but allowing the device to operate in a partly wound condition for a matter of two minutes, approximately, will result in a loss of the remaining time, and an inability by the parker to finish the operation which he began.

Referring now to Figures 7, 8, 9 and 10, an alternative form of the invention is shown. This embodiment is particularly useful where the meter is to operate with coins of different values, to provide a corresponding purchased time interval. A coin receiver 62 is shown, which may be of the type illustrated, or may be of the same form as the coin-receiving member 21 shown in the previous embodiment. In the present instance, pin 63 cooperates with the coin and the rim 45 of the case to hold coin receiver 62 in position. A spring 64 mounted on pin 65, and passing through an opening 66 in coin receiver 62, functions similarly to the spring 24 in the previous embodiments. The coin receiver 62 has a projecting lug 42, as before, adapted to operate the mechanism, and at the same time, to set the device. Dog 40 cooperates with lug 42 in the same manner described previously. However, there is an additional dog 67 which is rotatably mounted on shaft 7, and cooperates with a U-shaped member 68, which likewise is mounted upon shaft 7. Dog 67 has a projection 69 adapted to engage U-shaped member 68, and a second projecting portion 70 which cooperates with lug 42 in a manner to be described.

The operation of this alternative form of the device will be described in terms of its use with pennies and nickels.

Coin receiver 62, together with its integrally formed lug 42, is adjusted so that when a penny is inserted it occupies the position shown in solid lines in Fig. 9. The lug 42 is thereby positioned so that it will clear the end of dog 40, but will engage the portion 70 of dog 67. Then as handle 5 rotates the plate 15 and assembly thereon with a penny in position as shown in Figure 9, the rotation will continue without result until the dog 67 has been rotated sufficiently far to contact U-shaped member 68 by means of projecting portion 69. Dog 67 then operates upon the U-shaped assembly 68 to rotate the shaft 7 winding the clockwork mechanism, and setting the time-indicating means to the proper position. In the embodiment shown, dog 67 and U-shaped member 68 are formed in such a way that this rotation by means of a penny will operate to set a time of about twelve minutes upon the meter before the opening 16 in cylinder 14 comes opposite the coin chute 48, and drops the coin thereinto. The approximate point at which lug 42 and dog 67 begin to operate the winding and setting operation just described, is indicated at the dotted section 71 in Fig. 9.

If, instead of a penny, a nickel is inserted,

the coin receiver 62 will occupy the dotted-line position shown in Fig. 9. The lug 42 will then be positioned so that as the rotation of the handle 5 is carried out, lug 42 contacts dog 40 to set the mechanism in the manner described in connection with the previous embodiments of the invention. Dog 67 being movably mounted on the shaft, moves with dog 40 and has no effect upon the mechanism. Dog 40 is positioned so that the entire sixty-minute interval (see Fig. 1) will be set, rather than the approximately twelve-minute interval set by dog 67 when a penny is employed.

An alternative form of temporary coin holder is likewise illustrated. Member 72 is centrally located in the space 48 and springingly operates to retain a coin therein until a subsequent coin is discharged into the space 48 to force the previous coin out and into the permanent coin-receiving box 12. A window 10 is likewise provided for the purpose indicated previously.

In view of the above, it will be seen that the several objects of the invention are achieved and other advantageous results attained.

As many changes could be made in the above constructions without departing from the scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

What is claimed is:

1. A coin-controlled timing device comprising a rotatably mounted coin-carrier, a coin receiver having a coin receiving space mounted on said carrier, actuating means for rotating the carrier in one direction only, means for admitting a coin to said space at one predetermined angular position of the carrier, means for releasing the coin from the space at a second predetermined angular position of the carrier, a clockworks, connecting means adapted when the carrier is between said angular positions and a coin is in said space to form a reversible driving connection between the carrier and the clockworks, said carrier being rotatable in a reverse direction solely by said clockworks, and means for releasing the coin from said space when the carrier is driven in a reverse direction by the clockworks after an incompleted winding operation.

2. A coin-controlled timing device comprising a rotatably mounted coin-carrier, a stationary bearing surface adjacent the periphery of said carrier, a coin receiver having a coin receiving space mounted on said carrier, means biasing the receiver toward the bearing surface, a clockworks, means forming a reversible driving connection between said carrier and the clockworks when the receiver is spaced from the bearing surface by a coin positioned in said space, actuating means for rotating the carrier in one direction only to wind the clockworks, said carrier being rotatable in a reverse direction solely by said clockworks, means for positioning a coin in said space at one predetermined angular position of the carrier, and means for releasing a coin from said space at a second predetermined angular position of the carrier, said coin receiving space having an exit for releasing the coin intermediate said positions of the carrier upon reverse rotation of the carrier by unwinding of the clockworks after an incompleted winding operation.

3. A coin-controlled timing device comprising a rotatably mounted coin-carrier, a coin receiver mounted on said carrier having a plurality of

coin receiving spaces in side by side relationship with means to permit transfer of a coin therebetween, means for rotating the carrier in one direction, means for positioning a coin in the first of said spaces at a predetermined angular position of the carrier, a clockworks, connecting means adapted only when a coin is in said first space to form a reversible driving connection between the carrier and the clockworks, said means being adapted to transfer the coin from the said first space to a second space rendering the driving connection inoperable when the carrier is rotated in a reverse direction by the clockworks, and means for releasing a coin from either of said spaces after rotation of the carrier through a predetermined angle.

4. A coin-controlled timing device comprising a rotatably mounted coin-carrier, a stationary bearing surface adjacent the periphery of said carrier, a coin receiver mounted on the carrier and biased toward said bearing surface having a plurality of coin receiving spaces, said spaces being arranged in side by side relationship whereby a coin seated in the first of said spaces will frictionally engage said bearing surface and remain seated in the first space during rotation of the carrier in one direction and will move to and seat in the second of said spaces upon rotation of the carrier in a reverse direction, actuating means for rotating the carrier in said one direction, a clockworks, connecting means adapted only when a coin is positioned in said first space to form a reversible driving connection between the carrier and the clockworks, means for positioning a deposited coin in said first space at a first predetermined angular position of the carrier, and means for releasing the coin from said spaces at a second predetermined angular position of the carrier.

5. A coin-controlled timing device comprising a rotatably mounted coin-carrier, a stationary bearing surface adjacent the periphery of said carrier, a coin receiver mounted on the coin carrier and biased toward said bearing surface having a plurality of coin receiving spaces, said spaces being arranged in side by side relationship and of different depth whereby the receiver may be spaced at varying distances from the bearing surface by a coin positioned in said spaces, said coin being moved to the space of greater depth by friction with the bearing surface upon rotation of the carrier in one direction, actuating means for rotating the carrier in the reverse direction, means for positioning a coin in the space of least depth at one predetermined angular position of the carrier, a clockworks, means forming a reversible driving connection between the clockworks and the carrier when the receiver is spaced by a coin in the space of least depth, and means for releasing the coin from said spaces after rotation of the carrier through a predetermined angle.

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