

## THE JOINT EXAMINATION BOARD

## PAPER P3

5                    **Preparation of Specifications for United Kingdom and Overseas  
                         Patents**

Friday, 5<sup>th</sup> November 2004  
10.00 a.m. – 2.00 p. m.

10

*Please read the following carefully. Time Allowed – **FOUR HOURS***

15

1. The marks attributed to each part of the paper are shown.

2. Please note the following:

20

Enter the Paper Number and your Candidate number in the appropriate boxes at the top of each page or sheet.

Write on one side of the paper only, within the printed margins using a **BLACK** or **BLUE-BLACK** pen.

25

**DO NOT** use coloured pens or highlighters within the answers – they will not photocopy.

**DO NOT** staple or join pages or sheets together in any way.

**DO NOT** state your name anywhere in the answers.

30

3. **Unless specifically requested answers are NOT required in letter form.**

4. **NO** printed matter or other written material may be taken into the examination room.

**ALL** mobile phones and electronic aids **must be** switched off and stored away.

35

5. Answers **MUST** be legible. If the examiners cannot read a candidate's answer no marks will be awarded.

40

6. **NO WRITING OF ANY KIND WILL BE PERMITTED AFTER THE TIME ALLOTTED TO THIS PAPER HAS EXPIRED. At the end of the examination assemble your answer pages and sheets in order and place in the WHITE envelope provided.**

45

This paper consists of nine pages, including this page and comprises two pages of client's instructions and two sets of drawings, each of three sheets.

Your client, a garden equipment manufacturer, writes as follows:

5 "As you know, we make and sell, amongst many other things, a large number of hanging baskets. One problem with hanging baskets is that they require regular watering if the plants they contain are to flourish.

10 The weight of a filled basket makes it impractical to remove the basket from its suspension bracket in order to water it and instead it is a common sight to see people standing unsteadily on a chair or ladder holding a watering can in order to water their baskets, but this is often not an option for elderly or infirm people.

15 We offer an elongate hose fitting which is long enough to reach most hanging baskets. This is a very effective solution but since it requires connection to a hose some people find it bothersome to set up unless a large number of baskets is to be watered. One of our competitors offers a system of piping which is fed to each basket to be watered and which waters each basket by turning on a tap. Again, this is an effective solution, but at a cost.

20 We have also seen traditional pulley systems for raising hanging baskets to their display position and lowering the baskets to a position where they can easily be watered. However, these tend to be expensive and are prone to jamming if, for example, the suspending ropes become twisted. More  
25 importantly, the pulley systems require the suspending ropes to be secured in position, such as by being tied to a cleat or hook attached to a nearby wall, both when the baskets are in their raised position and when they are lowered to a position which allows easy watering. If the ropes are not properly secured, or if they become loose in use, the suspended basket, which can be  
30 of considerable weight, can come crashing down.

We have therefore put our minds to devising a simple device which allows a hanging basket easily to be moved between a raised display position and a lowered position in which the basket can easily be watered, and in which the  
35 basket is positively held in the desired position.

As you can see from the enclosed drawings, we have come up with a device which hooks onto a bracket from which the basket is normally suspended. The basket hooks onto an eye which projects out of the lower end of the  
40 device.

The eye is located on one end of a long flat reinforced plastics band which can be wound up on a drum which is mounted on a central boss on one of two casing shells. One face of the drum also carries a ratchet disc having four  
45 spaced notches which can receive a pivotally mounted pawl. The drum and ratchet disc are biased by a spiral spring in a direction which winds the band onto the drum.

In use, the device is suspended from a bracket or the like with the basket hanging from the eyelet. In this position, the weight of the basket will have  
50

caused the drum and ratchet disc to have rotated sufficiently for the pawl to engage by gravity with one of the ratchet disc notches, thus holding the basket positively in the raised position.

5 In order to lower the basket, a user relieves the weight of the basket, which causes the spring to rotate the drum slightly in the winding direction. This in turn causes the nose of the pawl to ride up the rearmost edge of the notch and to rest on one of the lobes between adjacent ratchet notches. The basket is then pulled downwards, causing the band to be paid out quite quickly from the drum and causing the drum and ratchet disc to rotate. As the drum rotates the pawl moves off the lobe and begins to drop under its own weight towards the notch. However, the lobes between adjacent ratchet notches are of gradually increasing radial height, so that if the ratchet disc is rotated sufficiently quickly in the unwinding direction of the drum, the pawl nose will not have sufficient time drop into a notch under the influence of gravity but instead will ride over the notches and engage the lower end of the next lobe. This continues with successive notches for as long as the drum is rotated at the required speed.

20 When the basket has been lowered to a convenient height, the speed of lowering the basket is reduced, which gives the pawl time to drop into one of the notches by gravity in order to hold the basket firmly and positively at the desired height.

25 To raise the basket, the basket is simply lifted up, which allows the band to be drawn into the device onto the drum. During this motion, the pawl simply clicks over the lobes until the desired height has been reached, when the user withdraws the support of the basket, thereby allowing the pawl to engage the next ratchet disc notch.

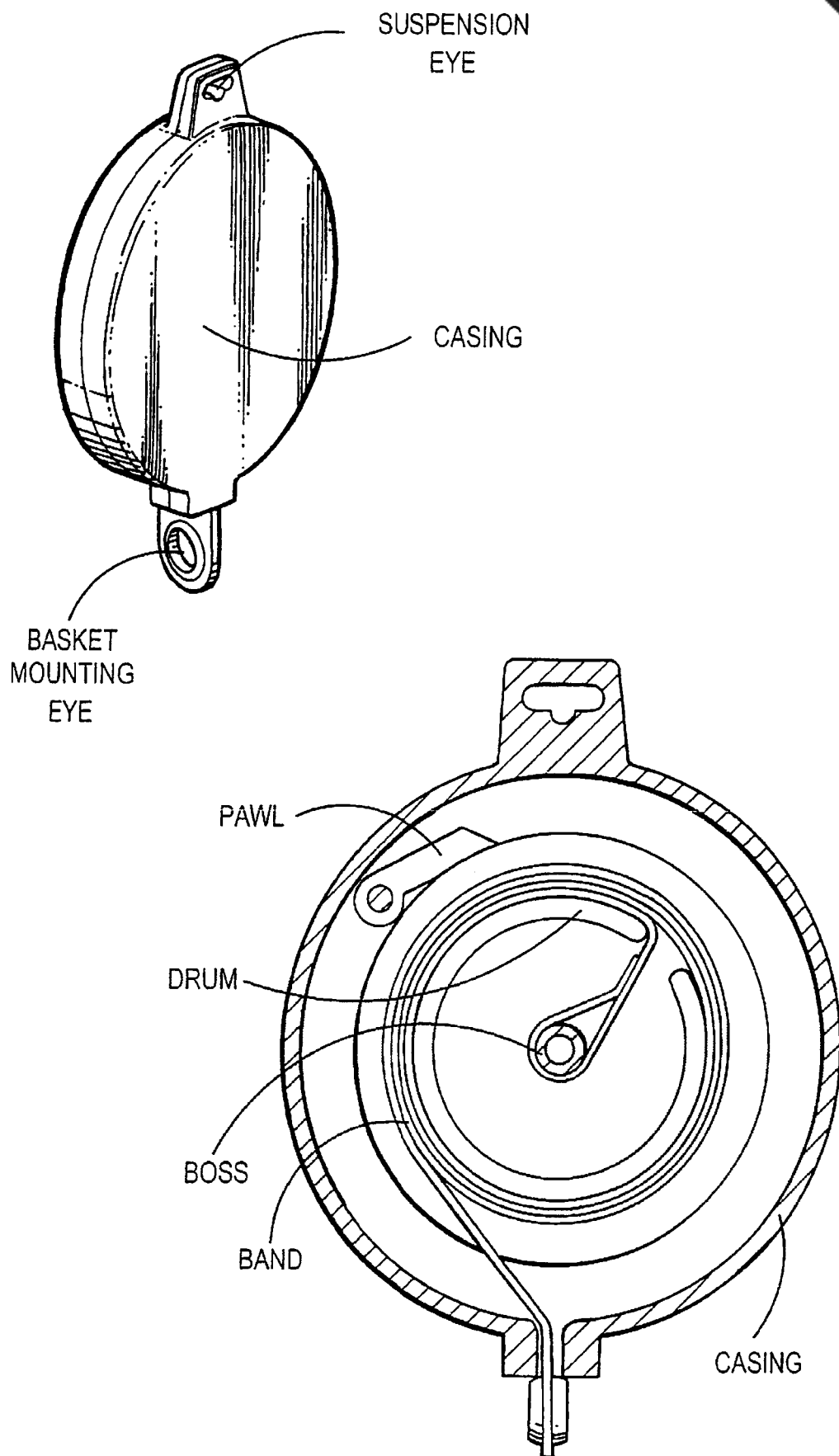
30 We know our competitors will want to copy this and we therefore want you to take whatever steps are necessary to prevent this."

-0-0-0-0-0-0-0-0-0-0-0-0-0-0-

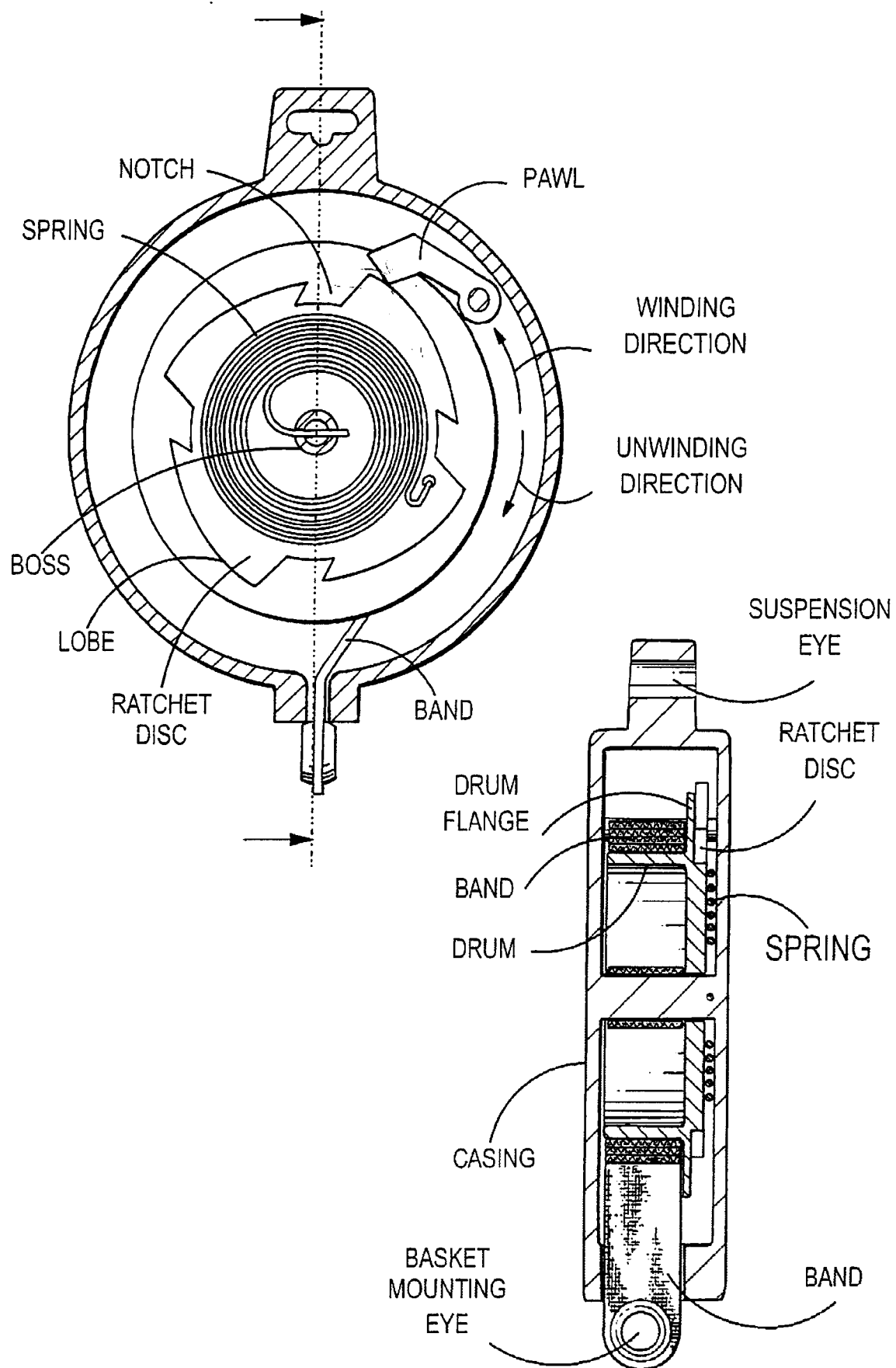
35 You are to draft a patent specification suitable for first filing at the United Kingdom Patent Office. Marks will be awarded as follows:

40	Preamble – up to before the description of the drawings	15%
	Specific description	15%
	Claims	70%

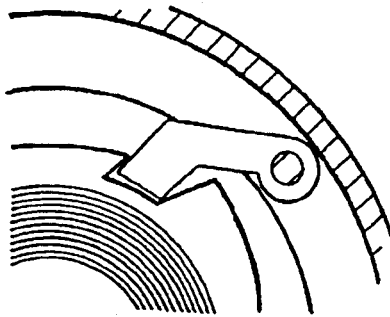
45 There is no need to prepare an abstract.



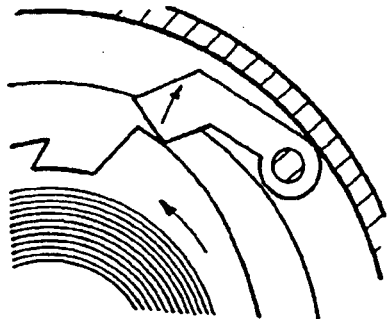
4.29



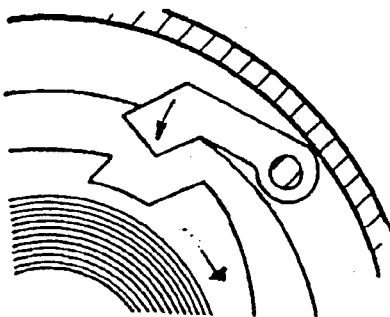
5 of 9



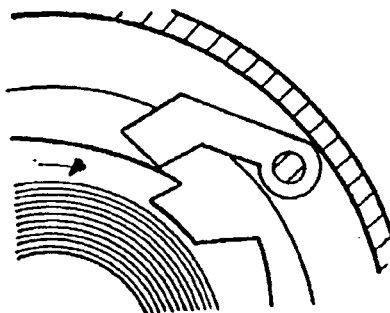
PAWL ENGAGED  
WITH RATCHET NOTCH



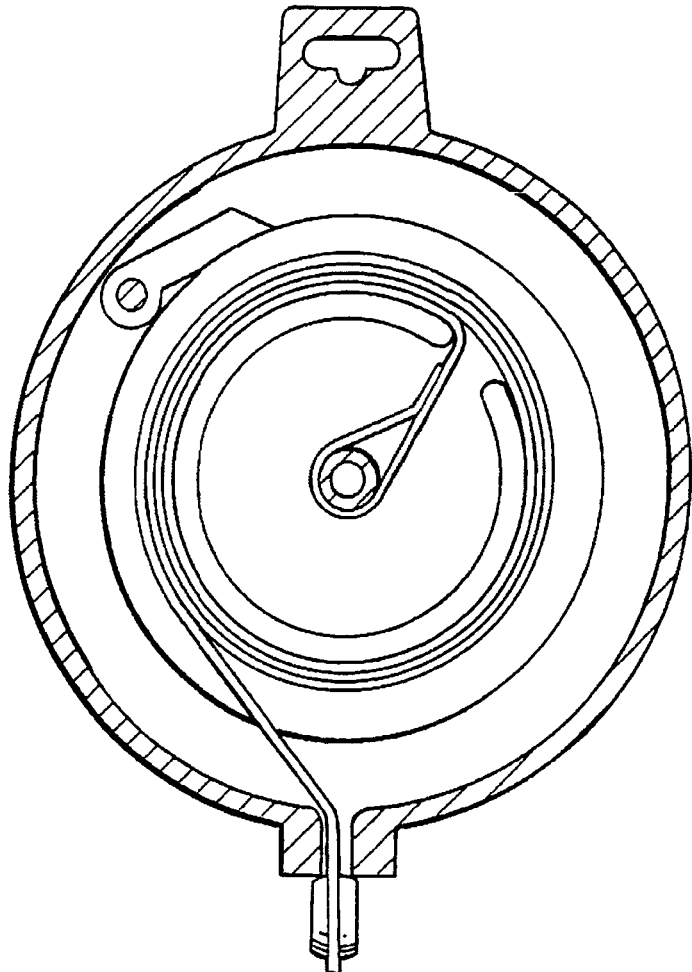
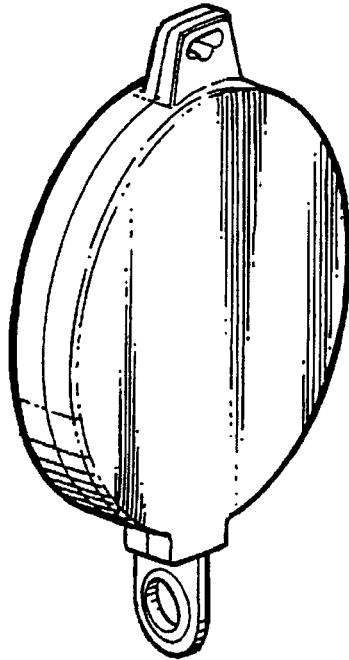
PAWL ROTATED OUT  
OF ENGAGEMENT WITH  
NOTCH AS DRUM IS  
ROTATED IN WINDING DIRECTION  
BY SPRING ACTION  
( BASKET WEIGHT RELIEVED )



PAWL FALLS UNDER  
GRAVITY AS DRUM  
ROTATES IN  
UNWINDING  
DIRECTION

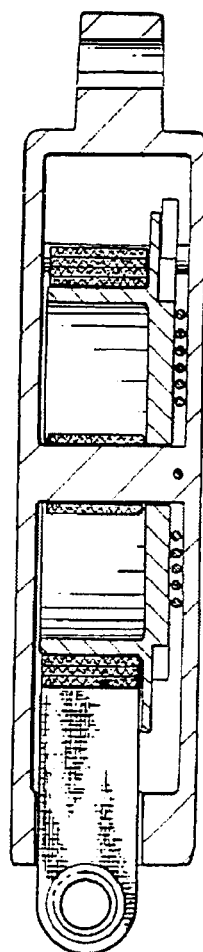
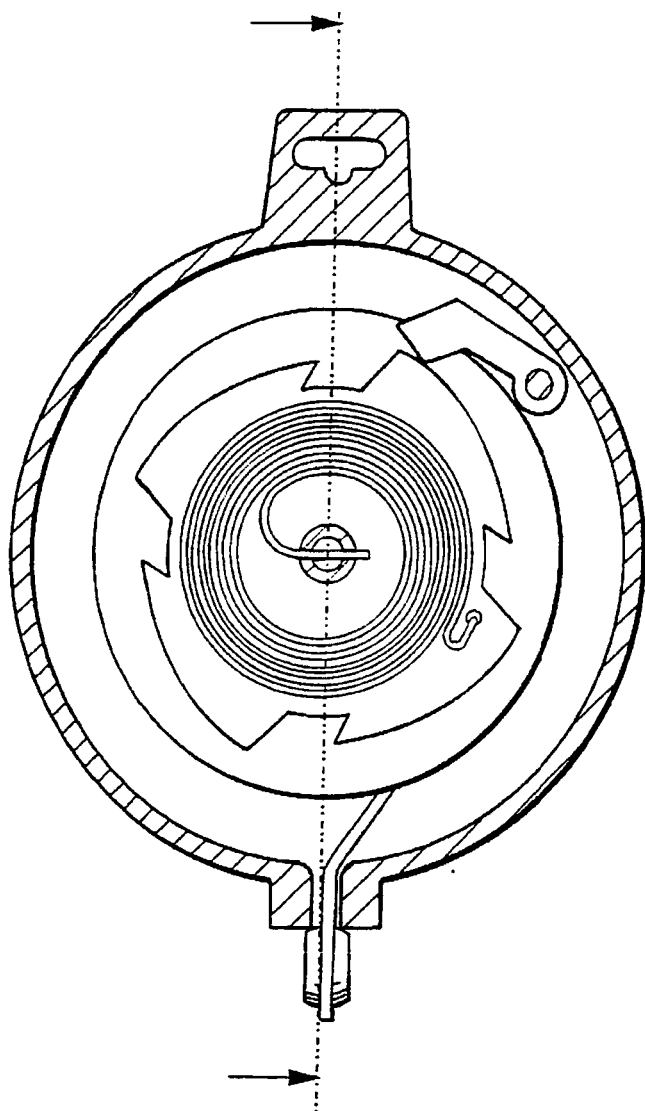


IF ROTATION OF DRUM IS  
SUFFICIENTLY FAST,  
PAWL OSCILLATES BUT  
DOES NOT DROP  
SUFFICIENTLY  
QUICKLY TO  
ENGAGE NOTCH



7.12 9





8 2 9



