Domestic Clocks

The domestic clock was not exactly invented, it was probably a spin-off from the Scientific activities of churchmen, astrologers and mechanics of the Middle Ages interested in increasing their knowledge of the stars or improving discipline in religious communities Perhaps some 13th-century king or bishop first had a clock in his house as a symbol of prestige or wealth or perhaps from interest, or to call him to prayer Certainly, the church assistant needed to know when to warn the watchman to ring the bolt in the watchtower to warn the local people about some communal activity such as digging a ditch preparing to defend themselves against raiders, or gathering to help put a fire out.

So possibly it was the watchman's clock on the wall that became the domestic iron clock of the medieval household. It was a valuable possession, and when the family moved, it went with them, just as did any glass windows they had Iron clocks and lantern clocks, hanging on the wall from a hook, were the first general domestic clocks The weight that powered them hung below them and generally had to be pulled up twice a day in some countries, it became fashionable to fit ornate wooden cases around them and mount these clocks on wooden brackets.

Although the weight-driven clock was not originally designed for domestic use, the spring-driven one undoubtedly was The use of a coiled spring instead of a weight to provide power made possible first the portable clock and subsequently the smaller personal clock, which was later called a watch Spring clocks were first made in France in the 1400s. It seems, but little is known of their origin. The earliest spring-driven clock known is dated about 1450 it is like the weight-driven clock of the time but with the weights replaced by coiled springs.

The changeover from weight-driven to spring-driven clocks did not prove so simple, however, because, unlike the falling weight the coiled spring did not provide a constant source of power. When wound up, the spring gave a force that was very strong, but only for a short time. The force then decreased unevenly for some hours before slowing rapidly The middle of the range was most useful for driving the clock, but the reducing force was a problem Early coiled springs also suffered from the fact that they could not be made very evenly or smoothly and did not coil accurately. When this happened the power was released in uneven bursts. The means adopted to overcome these disadvantages, which directly affected timekeeping accuracy, were twofold.

The first step was to limit the use of the spring to the middle of its action to prevent it from driving the clock when it was too tightly wound up or not wound up tightly enough the next step was to provide a form of gearing between the spring and the clock to make the power output more even the method was so simple, ingenious and elegant that it has remained in use, at least in certain types of clock, from the time it was invented until today.

It is called the fusee, meaning a spindle wound with a thread. A fusee is a trumpet-shaped object with a toothed or gear wheel at the larger end, which is connected to the driving wheel of the clock. The trumpet-shaped part had a spiral groove cut in it, and a strong thread attached to the groove at the larger end. The rest of the thread is wound around the barrel of the clock, containing the spring. When the fusee is turned with

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the key, thread is pulled off the barrel, which winds up the spring inside it. The thread is wound on the fusee groove, which becomes smaller and smaller in diameter so that in effect it means the spring drives the clock at a constant speed. Fusee were used from the 1400s to the early 1900s. This relatively simple device to improve timekeeping by equalising the uneven pull of the mainspring achieved its purpose effectively. Granville Baillie, a leading clockmaker and watchmaker in the 1900s, said of the fusee, 'Perhaps no problem in mechanics has ever been solved so simply and so perfectly.'

Questions 1-5
TRUE – if the statement is in agreement
FALSE – if the statement is in contradiction

NOT GIVEN – if there is no information available in the passage

1 The earliest domestic clocks were developed with the aim of providing household routine.

2 Medieval clocks stayed on the property when the homes were sold by the owners.

3 Pulling the weights on wall-mounted clocks needs a specific skillset.

4 The spring placed inside a watch allows it to move around.

5 The firstly used spring-driven clocks had problems keeping the right time.

Question 6-10

Choose NO MORE THAN THREE WORDS from the paragraph for every answer.

6 Weight-driven clocks were made of …….

7 Decorated clock cases fixed to the wall with the help of …….

8 Spring-driven clocks were initially produced at …….

9 Spring-driven clocks had problems keeping ……. even.

Questions 10-13

Choose NO MORE THAN THREE WORDS from the paragraph for every answer.

10 What does a fusee appears like ?

11 The spiral groove on a fusee is joined to what ?

12 What object is needed to wind the spring on the fusee ?

13 The gradual reduction of the fusee groove ensure what ?

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