

[54] **PENDULUM CLOCK**

2,712,758 7/1955 Schaaf, Jr. .... 58/28 D X

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[22] Filed: **Dec. 7, 1973**

[21] Appl. No.: **422,924**

[57] **ABSTRACT**

A pendulum clock of the weighted rope end-type, constructed so as to be fitted with a commercially mass-produced clockwork, and which will run dependably and in a frictionless manner upon the simple and inexpensive assembly thereof. The clock includes a lever which comprises a pendulum-type wire having an end remote from an escapement shaft, bent in parallel with the escapement shaft and extending into a pendulum slot, and in which the pendulum base is pivotably suspended from a wire, or the like, by means of ears or loops fastened to its upper surface.

[30] **Foreign Application Priority Data**

Feb. 13, 1973 Germany..... 7305345

[52] U.S. Cl. .... **58/129**, 74/1.5

[51] Int. Cl. .... **G04b 17/02**, G04c 3/02

[58] Field of Search ..... 58/23 D, 29, 30, 129;  
74/1.5, 22, 142

[56] **References Cited**

**UNITED STATES PATENTS**

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**5 Claims, 2 Drawing Figures**

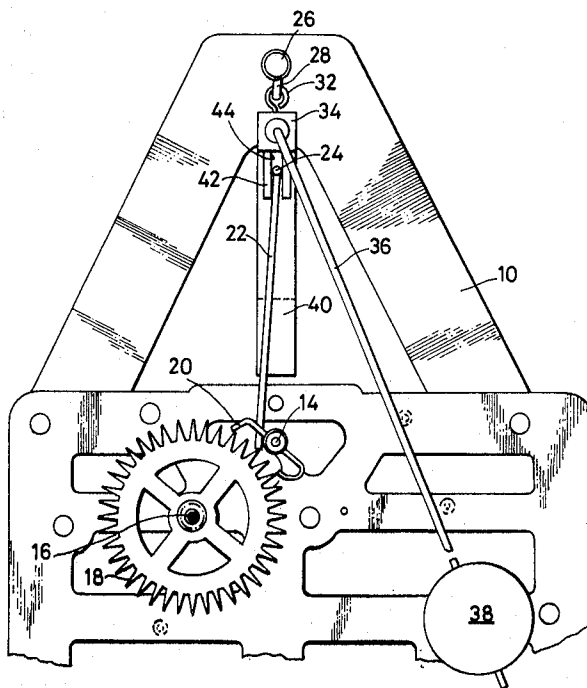


FIG.1

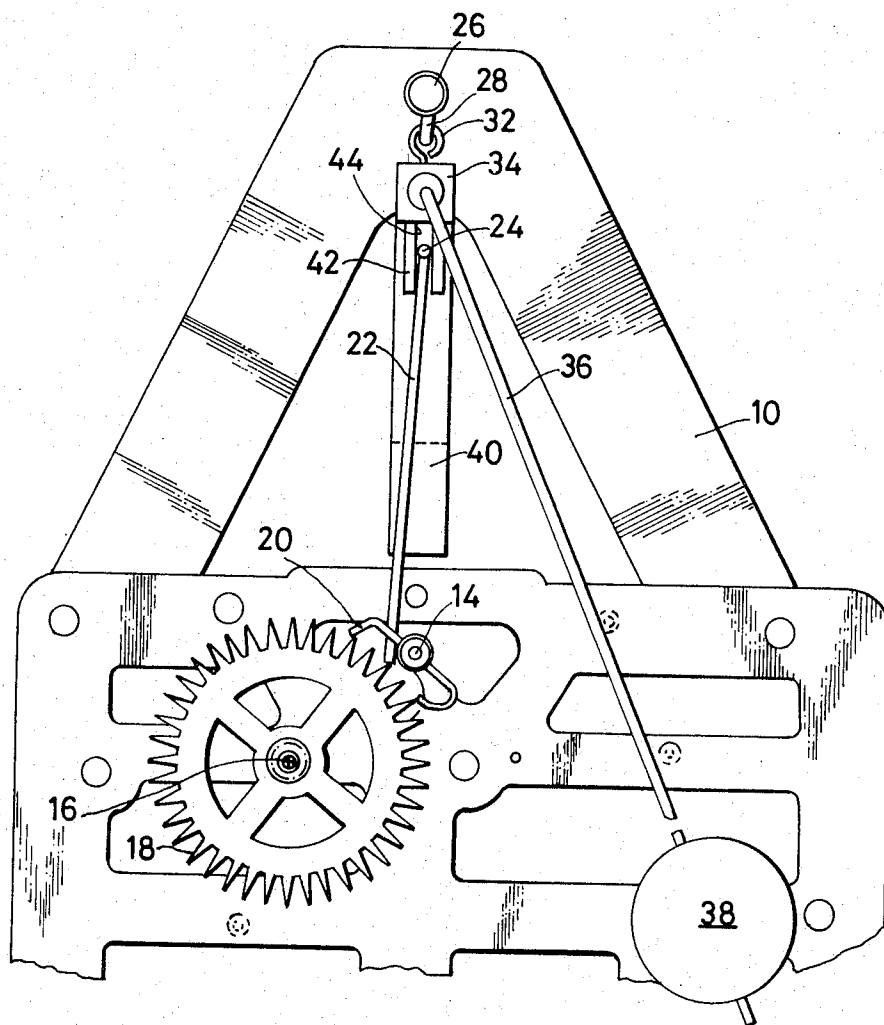
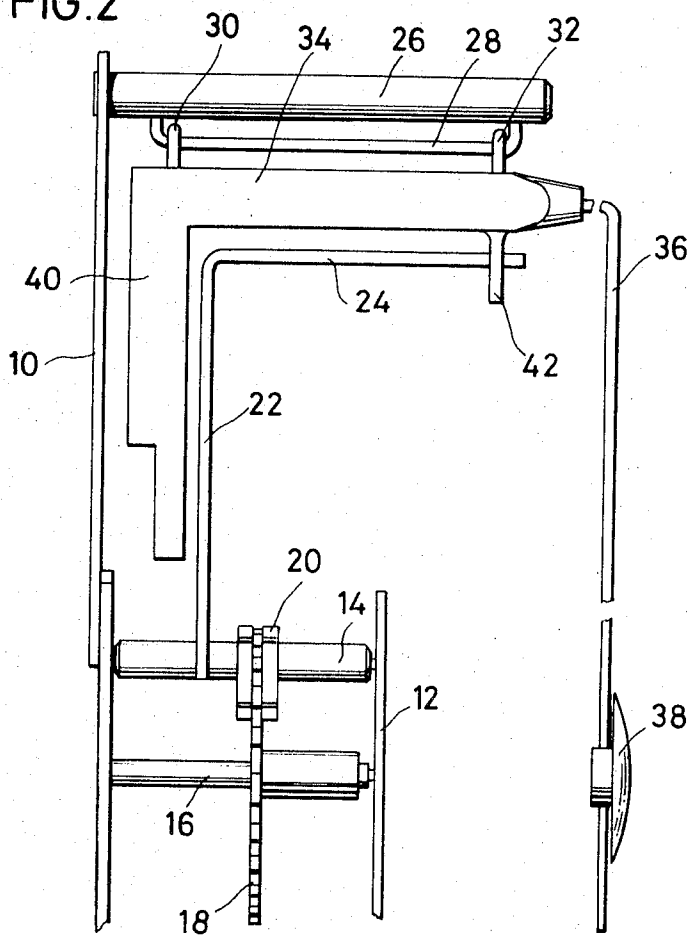


FIG. 2



# 1 PENDULUM CLOCK

## FIELD OF THE INVENTION

The present invention relates to a pendulum clock. More particularly, the invention relates to a pendulum clock having a weighted-end pendulum (cow-tail), including an escapement drive, which has a lever fastened to an escapement shaft thereof, and which is coupled to a pendulum base, extending in parallel in proximity with the escapement shaft, by means of a segment thereof, extending into a slot.

## DISCUSSION OF THE PRIOR ART

In the regulation of pendulums, particularly of the so-called "cow-tail" or weighted-end rope type, originally there has been employed a so-called spindle drive, which was developed in particular for that purpose. That type of drive is, however, extremely complex, relatively expensive and, moreover, requires a relatively large operating force. Furthermore, that type of drive is also subject to the disadvantage in that it is lacking in its ultimate operating precision.

In one of the known pendulum clocks of the type described, predicated on knowledge of the mentioned disadvantages, in lieu of this drive there has been employed the well known Black Forest-escapement drive. The pendulum base which extends parallel to the escapement shaft is here, in a desirable construction, formed as a shaft which is journaled in suitable pivots.

This prior art construction has, however, not only the disadvantage that the pivot supports are relatively expensive to manufacture, and absorb a considerable amount of frictional energy, but also that a plurality of interengaging lever elements must be precisely correlated with respect to each other so as to enable the lever system to satisfactorily function. Furthermore, in order to avoid restraints in the transmission of power, various segments of the upper surfaces must be specially prepared or finished. Such preparations, during non-cutting finishing, lead to considerably increased expenditures.

## SUMMARY OF THE INVENTION

It is, accordingly, an object of the present invention to provide an improved pendulum clock of the weighted rope end-type constructed pursuant to the above-mentioned art, which may be fitted with a commercially mass-produced clockwork, and which will run dependably and in a frictionless manner upon the simple and inexpensive assembly thereof.

Inventively, this object is solved in that the lever comprises a pendulum-type wire having an end remote from the escapement shaft bent in parallel with the escapement shaft and extending into the pendulum slot, and in which the pendulum base is pivotably suspended from a wire, or the like, by means of ears or loops fastened to its upper surface.

This construction, in a simple manner, allows the pendulum-type wire to couple a standard commercial clockwork with the slot of the pendulum. The suspension of the pendulum base on a wire or the like by means of ears is not only a simple and inexpensive construction, but also provides the further advantage of considerable freedom from friction, inasmuch as at the site of pendulum support there is provided a rolling or

rocking movement in lieu of a force-retardant pivotal friction.

Preferably, the pendulum-type wire is fused into the escapement shaft, in effect, fastened to the escapement shaft through a spot weld connection. This considerably simplifies the construction of the clockwork. A particularly advantageous effect on the operation of the clock is provided by a counterweight, which is preferably located at the end of the pendulum base which is opposite to the pendulum. Preferably this counterweight is integrally connected with the pendulum base.

Furthermore, it is possible, for additional simplification during manufacture, to construct the pendulum base together with the counterweight and the ears as an integral component formed of plastic material, or the like.

## BRIEF DESCRIPTION OF THE DRAWING

Reference is now had to the following detailed description of a preferred embodiment of the invention, taken in conjunction with the accompanying figures of the drawing, in which:

FIG. 1 is a front elevational view of a portion of the pendulum clock of the type described, showing the invention; and

FIG. 2 is a side elevational view of the constructional elements illustrated in FIG. 1.

## DETAILED DESCRIPTION

Intermediate a support frame 10 and face plate 12 of the clockwork, there is supported an escapement shaft 14, as well as a shaft 16 of an escapement wheel 18. The escapement shaft 14 supports an elbow-shaped escapement 20 which, in a usual manner, is adapted to engage with the teeth of the escapement wheel 18. An upwardly extending so-called pendulum-type wire 22 is bent so as to extend in parallel with the escapement shaft 14 at its upper end portion 24. At the upper end of the support frame 10, a pendulum pivot 26, which extends parallel to the escapement shaft 14, is rigidly welded thereto, and supports along its lower surface a longitudinally extending yoke 28 formed of wire.

An oscillating pendulum 36 of the type described located in front of the clock dial (not shown) is provided with a pendulum weight 38, and includes at its upper end a pendulum base 34 extending parallel to the escapement shaft 14 and having upwardly looped ears 30 and 32 which are hooked into the yoke 28. The ears 30 and 32, together with the wire-constructed yoke 28, form the support for the pendulum 36. At the end of the pendulum base 34 proximate the support frame 10, the former includes a downwardly bent counterweight 40 which, in the described exemplary embodiment, is integrally connected with the pendulum base.

The ears 30 and 32 may either be bent, as illustrated, from wire and then fastened to the pendulum base, or be integrally formed with the pendulum base.

At the lower surface of the pendulum base 34 below the upper ear 32 there is located an attachment 42 with a slot 44, into which extends the upper end 24 of the pendulum-type wire 22. In this manner, the movement of the escapement shaft 14 is transmitted to the pendulum base 34, and thereby to the pendulum 36.

While there has been shown what is considered to be the preferred embodiment of the invention, it will be obvious that modifications may be made which come

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within the scope of the disclosure of the specification.

What is claimed is:

1. In a pendulum clock having a weighted oscillating pendulum supported on a stationary frame; an escapement shaft; and a lever connected to said escapement shaft, said lever having a segment engaged in a slot in a portion of the pendulum extending in parallel with said escapement shaft so as to form a connection with said pendulum, the improvement comprising; said lever being a pendulum-type wire, said wire having a bent end portion remote from said escapement shaft and extending parallel therewith, said end portion being engaged in the pendulum slot; ear means being formed on the upper surface of said pendulum base; and support means on the upper end of said frame, said support

means being engaged by said ears for pivotable suspension thereon of said pendulum.

2. An improvement as claimed in claim 1, said pendulum-type wire being connected to said escapement shaft.

3. An improvement as claimed in claim 1, comprising a counterweight being provided on one end of said pendulum base opposite to the end supporting said pendulum.

4. An improvement as claimed in claim 3, said counterweight being integrally formed with said pendulum base.

5. An improvement as claimed in claim 4, said counterweight and said pendulum base being formed of plastic material.

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