Oct. 1, 1940. W. F. WRIGHT 2,216,482

CLOCK MECHANISM

Filed April 11, 1939

Fig. 1

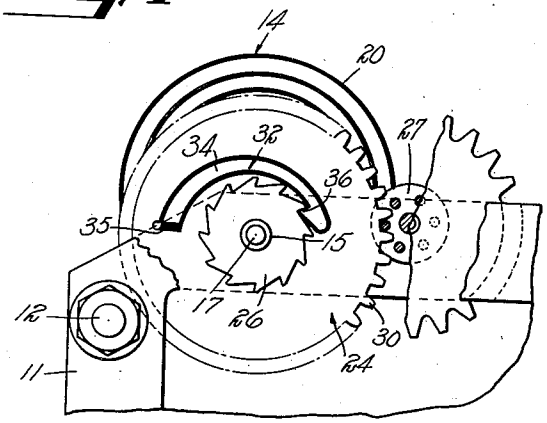


Fig. 2

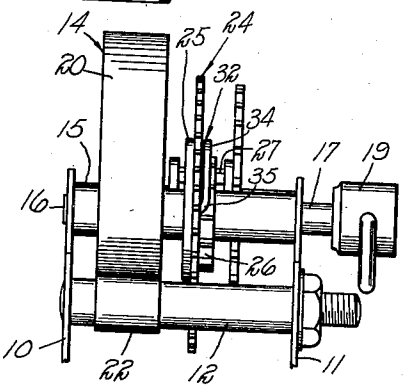


Fig. 3

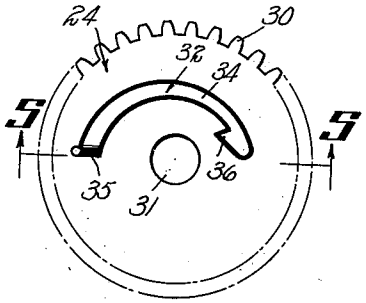


Fig. 4

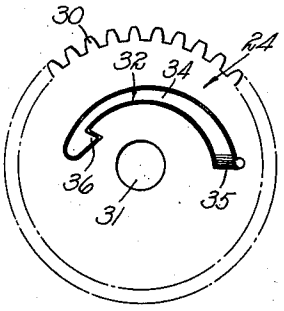


Fig. 5

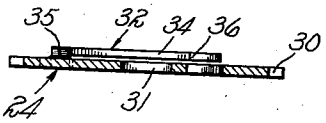
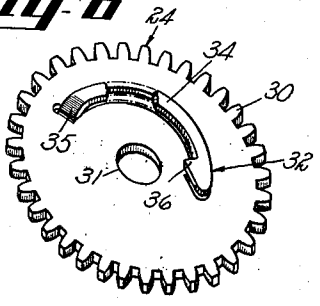


Fig. 6



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Patented Oct. 1, 1940 2,216,482

UNITED STATES PATENT OFFICE

2,216,482

CLOCK MECHANISM

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Application April 11, 1939, Serial No. 267,287

1 Claim. (Cl. 74—577)

The present invention relates to an improved one-piece gear, spring, and pawl structure adapted to be used in connection with spring winding mechanisms for clocks and the like.

The present invention aims to provide a gear, and spring, and pawl mechanism made in a one-piece structure and which is simple and economical to manufacture, is sturdy in construction, and is reliable in operation.

Other objects will be in part obvious and in part pointed out more in detail hereinafter.

The invention accordingly consists in the features of construction, combination of elements, and arrangement of parts which will be exemplified in the construction hereafter set forth and the scope of the application of which will be indicated in the appended claim.

In the accompanying drawing:

Figure 1 is a fragmentary elevational view of a spring winding mechanism of a clock or the like, illustrating a preferred embodiment of the invention;

Fig. 2 is an end view of the mechanism shown in Fig. 1;

Fig. 3 is an enlarged front elevational view illustrating the one piece spring, pawl, and gear;

Fig. 4 is a rear elevational view of the gear shown in Fig. 3;

Fig. 5 is a sectional view taken along the line 5—5 on Fig. 3; and

Fig. 6 is a perspective view of the one-piece spring pawl and gear with a portion thereof broken away to more clearly show the construction.

Referring to the drawing in detail, and more particularly to Figs. 1 and 2, there is shown a portion of a clock comprising front and back frame plates 10 and 11 held in spaced relation by suitable pillars or sleeves 12, and a spring motor 14 which may be utilized for rotating a train of time movement gears or for actuating an audible signal, such as an alarm.

The clock motor comprises a winding shaft 15 having one end 16 thereof journalled in the front plate 10 and having its other end 17 journalled in and extending through the back plate 11 (Fig. 2) and provided on its outer end with a winding key or knob 19 secured thereto. Adjacent the forward end 16 of the shaft, a motor spring 20 is coiled about the shaft with its inner end (not shown) secured to the shaft and its outer end 22 secured to the pillar 12 or any other fixed member so that when the spring unwinds it rotates the shaft 15. Adjacent to the spring 20, there is mounted for free rotation on the shaft 15 a gear 24 provided with suitable peripheral teeth 30 adapted to engage a lantern pinion or other suitable gear 27 which may be utilized for driving a train of time movement or alarm gears. The gear 24 is held against lateral movement on the shaft by a disc 25 and a ratchet wheel 26 positioned to either side thereof and secured to the shaft for rotation therewith.

The rotation of shaft 15 is transferred through the ratchet 26 to the gear 24 by a suitable spring and pawl 32. Except for the gear 24 and spring and pawl structure 32 which is integral therewith, the foregoing is old in clock mechanisms and further description thereof is not necessary to an understanding of the invention herein.

In accordance with the present invention, the gear 24 and spring and pawl 32 comprise a one-piece integral disc structure which may be stamped into shape by a single operation. As best seen in Figs. 3 to 6, the spring and pawl 32 consist of a one-piece arcuate arm stamped out from the gear and intermediate of the shaft-receiving aperture 31 and peripheral teeth 30. In being cut or stamped, there is provided an offset tongue 35 fixed to the gear and extending substantially perpendicular to the plane thereof to position the spring and pawl parallel to and outwardly from the plane of the gear.

The pawl and spring extend from tongue 35 through an arcuate path of approximately 180 degrees to provide a spring arm 34 with its free end terminating in a ratchet-engaging pawl 36, which, when the device is assembled, engages a tooth of ratchet 26 approximately 135 degrees from the fixed end or tongue 35. As the spring arm 32 is relatively narrow, having a width at its widest point approximately equal to one-fourth of the radius of the gear, the arm 34 will acquire an inherent resiliency, whereby the free end or pawl 36 thereof may spring radially as the ratchet teeth pass thereunder.

With this construction, in winding the spring motor, the shaft 15 and ratchet 26 are rotated in a counterclockwise direction (Fig. 1) to wind the spring motor, and the teeth of the ratchet wheel will successively pass under the pawl 36 without rotating the gear 24. After the spring has been wound to a desired tension, the pawl 36 is maintained by the resiliency of spring arm 34 in engagement with a tooth of the ratchet wheel, thus connecting the gear 24 to the shaft 15. As the spring unwinds, the shaft 15, ratchet wheel 26, and gear 24 rotate in a clockwise direction, whereby the gear 24 is effective to rotate the

lantern pinion 27 and the gear chain of the clock.

It will be seen that the present invention provides a simple, inexpensive combined spring and pawl which is formed integral with the drive gear. The gear teeth and spring pawl can be made rapidly by a single stamping operation without subsequent assembling operations. The gear and pawl are rugged in construction and can readily withstand any rough usage to which they may be subjected and operate effectively without getting out of repair.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the language used in the following claim is intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

I claim as my invention:

A one-piece gear, spring, and pawl mechanism comprising a disc having teeth on its outer periphery and a centrally located shaft receiving aperture, and a spring and pawl stamped from and positioned intermediate said teeth and aperture and comprising a resilient arcuate arm fixed at one end to said disc by an offset tongue whereby said arm is offset laterally and lies in a plane parallel to the disc and having its free end terminating in a ratchet engaging pawl.

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