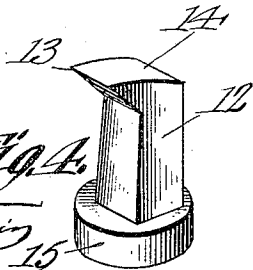
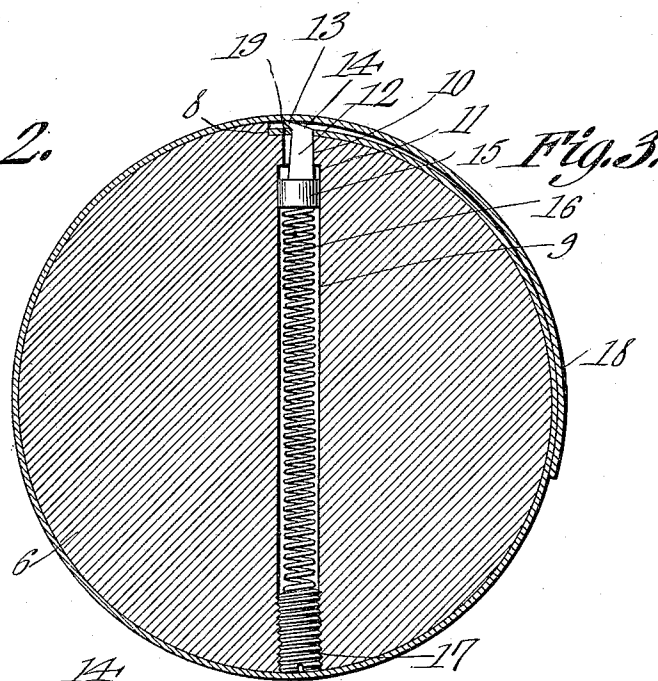
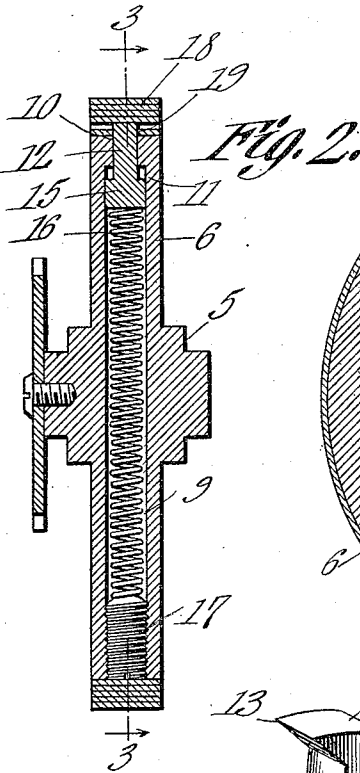
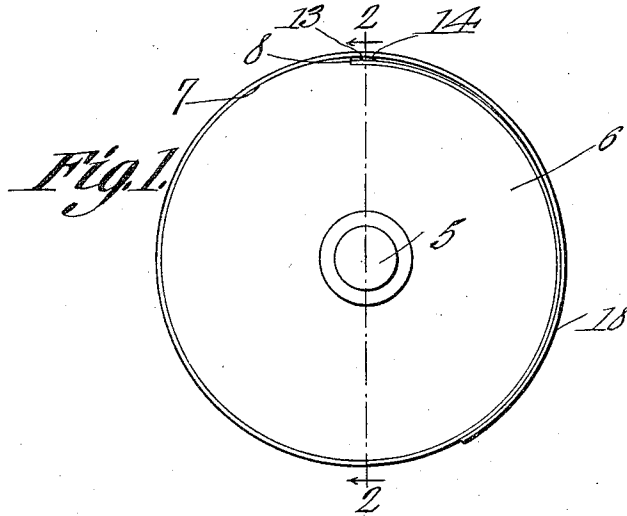


C. LOUDON.
 MAINSPRING WINDING ARBOR.
 APPLICATION FILED AUG. 23, 1912.

1,052,836.

Patented Feb. 11, 1913.



Witnesses
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UNITED STATES PATENT OFFICE.

CORNELIUS LOUDON, OF PHELPS, NEW YORK, ASSIGNOR OF ONE-HALF TO EDWARD B. PARTRIDGE, OF PHELPS, NEW YORK.

MAINSRING-WINDING ARBOR.

1,052,836.

Specification of Letters Patent.

Patented Feb. 11, 1913.

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To all whom it may concern:

Be it known that I, CORNELIUS LOUDON, a citizen of the United States, residing at Phelps, in the county of Ontario and State of New York, have invented a new and useful Mainspring-Winding Arbor, of which the following is a specification.

The present invention relates to main spring winding arbors and particularly to a novel means for connecting the end of the coil or main spring to the arbor.

It is the object of the present invention to provide a simple, durable, substantial and inexpensive fastening device for arbors, which is capable of attaching springs of various thicknesses and sizes to an arbor for effectively preventing the spring from being detached or becoming broken, due to acute bending or otherwise, which fastening means will adjust itself to different thicknesses of springs and to different pressures exerted by the springs during the various stages of winding or unwinding, and which will permit the spring to be readily attached to or detached from the arbor.

To the above ends, the present invention resides in the novel construction, arrangement and combination of parts hereinafter set forth and claimed, the invention being illustrated in its preferred embodiment in the accompanying drawings, wherein—

Figure 1 is a side elevation of an arbor embodying the present invention. Fig. 2 is an enlarged sectional detail taken on the line 2—2 of Fig. 1. Fig. 3 is a sectional view taken on the line 3—3 of Fig. 2. Fig. 4 is a perspective view of the spring engaging member.

Referring specifically to the drawings, the numeral 5 designates the arbor, which embodies the cylinder or drum 6, the periphery of which is of involute form, as designated by the numeral 7, in order to provide an abutment 8 of approximately the same height as the thickness of the ordinary spring to be employed in connection with the arbor.

The arbor is fashioned according to the requirements, it being understood that this invention may be employed in watches, clocks, main spring winders, or in connection with phonograph or other spring motors, so that the arbor may be constructed accordingly.

In carrying out the present invention, the

diametrical bore or passage 9 is passed through the cylinder 6, one end of the bore 9 terminating at a point adjacent the abutment 8 and being contracted and rectangular or non-circular in contour as designated by the numeral 10 so as to provide an inwardly spacing shoulder 11. A spring engaging member 12 is slidable through the contracted end 10 of the bore, this member as illustrated, comprising a rectangular or non-circular plunger having one edge cut away so as to provide a lip or hook 13 spacing the abutment 8, the outer end of the plunger being curved or eccentric as designated by the numeral 14, and the plunger being provided at its inner end with the head 15 working in the bore 9. The plunger 12 is of such a length that it is projectable beyond the periphery of the cylinder, and when the head 15 is seated against the shoulder 11, the hook 13 will be projected beyond the abutment 8. The plunger 12 being non-circular and working in the non-circular contracted end 10 of the bore is constrained against rotation, but is permitted to slide radially, the spring engaging member being insertible with the cylinder by inserting the same through the other end of the bore 9 and permitting the same to drop from the other end of the bore so that the plunger passes through the contracted end 10 of the bore, as will be apparent.

A coiled wire compression spring 16 is housed within the bore 9 and bears against the head 15 to normally project the plunger 12 beyond the periphery of the cylinder, a screw plug or other closure member 17 being engaged in the other end of the bore 9 in order to compressibly retain the spring 16 in position. It will be observed, that the spring 16 will normally force the spring engaging member 12 outwardly, and will permit the spring engaging member to yield, the head 15 in contacting with the shoulder 11 providing means for limiting the outward movement of the plunger.

The parts above described may be readily assembled and may be inexpensively constructed, it being evident that the details may be altered as is within the scope of the skilled mechanic so as to be in accord with the dictates of efficiency or convenience.

The main spring has been designated by the numeral 18, the same being provided at its inner end with a suitable aperture or

opening 19, and the spring is attached to the cylinder 6 by engaging the aperture 19 over the hook 13 when the plunger is in projected position. The inner end of the spring is thus brought against the abutment 8 and as the spring is wound up, the convolutions thereof will pass over the outer end of the plunger 12 and will cause the same to yield or move inwardly, thereby, firmly retaining the inner end of the spring in position. Thus, the plunger 12 will adjust itself to different thicknesses of springs, and will adjust itself to the different pressures exerted by the spring wound on the cylinder, during the various stages of winding or unwinding.

As above indicated, the present invention may be applied to the arbors of watches and clocks of various designs, main spring winders, or for phonograph or other spring motors, it being observed that the objects aimed at have been carried out in a satisfactory manner. The device may be constructed for right-hand winding or for left-hand winding. The advantages and capabilities of the present invention will be apparent from the foregoing, taken in connection with the drawings, and it is to be understood that this device may be altered or deviated in its details within the scope of the appended claims without departing from the spirit of the invention or sacrificing from the benefits derived.

Having thus described the invention, what is claimed is:

1. The combination with an arbor embodying a cylinder, of a spring engaging member movably housed within the cylinder and projectable beyond its periphery, and a spring wound on the cylinder and having its inner end detachably engaged to the said member.

2. The combination with an arbor embodying a cylinder, of a spring engaging member movably housed within the cylinder and projectable beyond its periphery, means for yieldably forcing said member to projected position, and a spring wound on the cylinder and having its inner end detachably engaged to the said member.

3. The combination with an arbor embodying a cylinder, of a spring engaging member movably housed within the cylinder and projectable beyond its periphery a compression spring housed within the cylinder and bearing against the said member to normally and yieldingly force the same to projected position and a spring wound on the cylinder and having its inner end detachably engaged to the said member.

4. The combination with an arbor embodying a cylinder, of a spring engaging member movably housed within the cylinder and projectable beyond its periphery, means for limiting the outward movement of the said member, means for yieldingly forcing

the said member to projected position and a spring wound on the cylinder and having its inner end detachably engaged to the said member.

5. The combination with an arbor embodying a cylinder provided with a bore extending inwardly from its periphery, the end of the bore being contracted, a spring engaging plunger slidable through the contracted end of the bore and having an inner head working in the bore, a spring housed in the bore and bearing against the head to yieldingly project the plunger beyond the periphery of the cylinder, and a spring wound on the cylinder and having its inner end detachably engaged to the outer end of the plunger.

6. The combination with an arbor embodying a cylinder provided with a diametrical bore therethrough, one end of said bore being contracted, a spring engaging plunger slidable through the contracted end of the bore and having a head working in the bore, a plug at the other end of the bore, a compression spring disposed between the plug and the said head to yieldingly project the plunger beyond the periphery of the cylinder, and a spring wound on the cylinder and having its inner end detachably engaged to the outer end of the plunger.

7. The combination with an arbor embodying a cylinder provided with a peripheral abutment, of a spring engaging member housed within the cylinder and projectable beyond its periphery adjacent the face of the abutment and beyond the abutment, and a spring wound on the cylinder and having its inner end engaged over the said member and bearing against the abutment.

8. The combination with an arbor embodying a cylinder provided with a peripheral abutment, of a spring engaging member slidable radially within the cylinder and projectable beyond its periphery adjacent the face of the abutment and beyond the abutment, means for yieldingly forcing the said member to projected position, and a spring wound on the cylinder and having its inner end engaged over the said member and bearing against the abutment.

9. The combination with an arbor embodying a cylinder provided with a peripheral abutment, of a spring engaging member slidable radially within the cylinder and projectable beyond its periphery adjacent the face of the abutment and beyond the abutment, a compression spring housed within the cylinder and bearing against the said member to normally and yieldingly force the same to projected position, and a spring wound on the cylinder and having its inner end engaged over the said member and bearing against the abutment.

10. The combination with an arbor em-

bodying a cylinder provided with a peripheral abutment, of a spring engaging member slidable radially within the cylinder and projectable beyond its periphery adjacent the face of the abutment and beyond the 5 the abutment, means for limiting the outward movement of the said member, means for yieldingly forcing the said member to projected position, and a spring wound on the 10 cylinder and having its inner end engaged over the said member and bearing against the abutment.

11. The combination with an arbor embodying a cylinder provided with a peripheral abutment, the cylinder being provided with a bore extending inwardly from its periphery adjacent the abutment and the end of the bore being contracted, of a spring engaging plunger slidable through the contracted end of the bore and having an inner head working in the bore, the outer end of the plunger being projectable beyond the abutment, a spring housed in the bore and bearing against the head to yieldingly project the plunger, and a spring wound on the cylinder and having its inner end engaged over the outer end of the plunger and bearing against the abutment. 25

12. The combination with an arbor embodying a cylinder provided with a peripheral abutment and with a diametrical bore therethrough, one end of the bore terminating adjacent the abutment and being contracted, a spring engaging plunger slidable through the contracted end of the bore and having a head working in the bore, the outer end of the plunger being projectable beyond the abutment, a plug in the other end of the bore, a compressible spring disposed between the plug and the said head to 40

normally and yieldingly project the outer end of the plunger beyond the abutment.

13. The combination with an arbor embodying a cylinder having its periphery of involute form to provide an abutment, of 45 a spring pressed main spring engaging member housed within the cylinder and slidable radially adjacent the abutment to project beyond the periphery of the cylinder and the abutment, and a main spring 50 wound on the cylinder and having its inner end engaged over the said member and bearing against the abutment.

14. The combination with an arbor embodying a cylinder having its periphery of involute form to provide an abutment, the cylinder being provided with a diametrical bore therethrough, one end of the bore terminating adjacent the abutment and being contracted and non-circular in contour, a 60 non-circular plunger slidable through the contracted end of the bore and having a head working in the bore, the plunger having a lip at its outer end spacing the abutment, and the outer end of the plunger being projectable beyond the abutment, a plug in the other end of the bore, a compression spring disposed between the plug and the said head to normally project the plunger, and a main spring wound on a cylinder and 70 having an opening in its inner end engaging over the said lip, the inner end of the main spring bearing against the abutment.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses. 75

CORNELIUS LOUDON.

Witnesses:

JOHN B. PARMELEE,
M. E. FETZER.