Dec. 18, 1923. 1,478,173

J. C. CLARK

MOTOR SPRING SECURING MEANS

Filed March 21, 1922

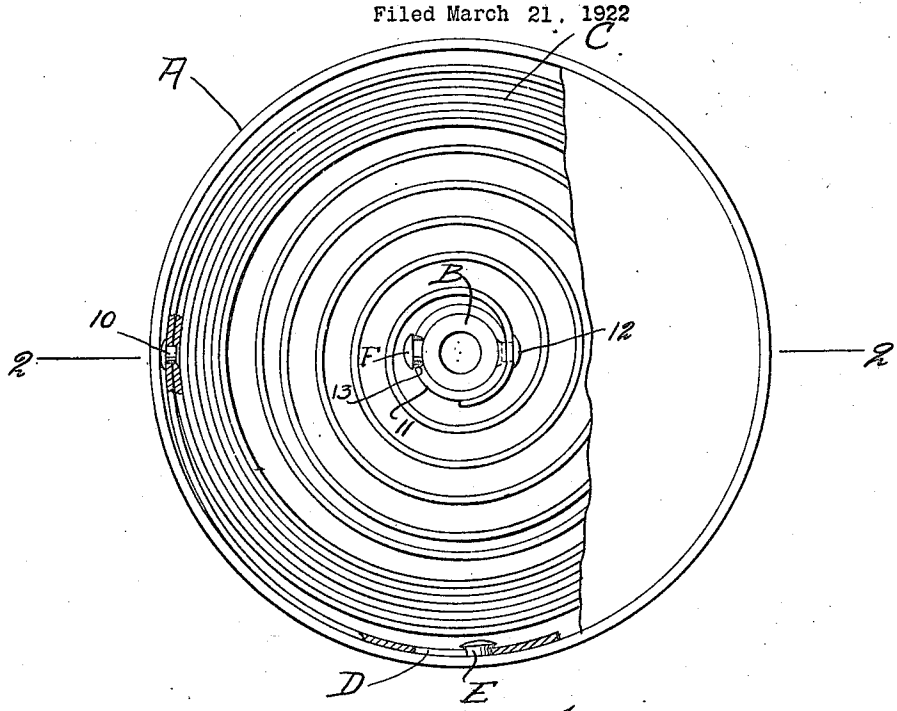


Fig. 1.

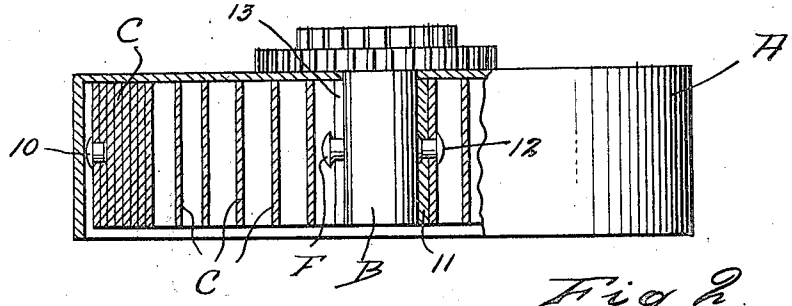
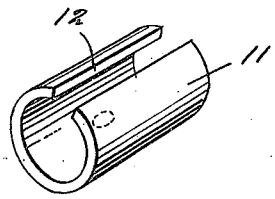


Fig. 2.

Fig. 3.



Witness

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Patented Dec. 18, 1923. 1,478,173

UNITED STATES PATENT OFFICE.

JOSEPH C. CLARK, OF SAN ANGELO, TEXAS.

MOTOR-SPRING-SECURING MEANS.

Application filed March 21, 1922. Serial No. 545,437.

To all whom it may concern:

Be it known that I, JOSEPH C. CLARK, a citizen of the United States, residing at San Angelo, in the county of Tom Green and State of Texas, have invented certain new and useful Improvements in Motor-Spring-Securing Means, of which the following is a specification.

This invention relates to the driving spring of motors and has for its object the provision of a spring in which the two outermost convolutions are secured permanently together whereby to prevent flying of the loose end of the spring and consequent injury to the workman placing the spring in position within its drum or housing, the securing together of these convolutions having no appreciable effect upon the power of the spring when under tension.

It is well known in the art that spiral springs such as are used in the motors of talking machines and the like are shipped in a somewhat tightened or wound condition, the spring being bound by a piece of wire placed around the periphery thereof with its ends twisted together. When a spring thus shipped is to be placed within a motor drum the wire must be removed and the outer end of the spring will fly with great force with probable more or less serious injury to the person performing the operation. It is also well known that springs are ordinarily held in position by the engagement of slots in the ends thereof upon lugs or studs carried by the winding shaft and the drum, it being notoriously a difficult matter to engage these slots upon the lugs. It is with these various facts in view that I have designed the present invention.

In addition to the securing together of the outermost convolutions of the spring, another, and important, object of the invention is to provide novel means for securing the inner end of the spring to the winding shaft.

With the above and other objects and advantages in view, the invention consists in the details of construction to be hereinafter more fully described and claimed and illustrated in the accompanying drawings in which—

Figure 1 is an edge view of a spring associated with its drum and winding shaft, a portion of the spring being in section.

Figure 2 is a cross sectional view.

Figure 3 is a detail perspective view of the sleeve.

Referring more particularly to the drawings, the letter A designates the drum of a spring motor through the center of which extends the winding shaft B which is usually of tubular formation so as to be supported upon a suitable solid shaft, not shown. The details of construction of the spring motor are not shown as they form no part of the present invention and their presence is not necessary to a thorough understanding of the subject matter. The letter C designates the usual spiral spring which is designed to have its ends secured to the drum A and shaft B. The outer end of the spring is formed with the usual slot D which is engaged upon an inwardly projecting lug E carried by the drum.

In carrying out the present invention I secure together the two outermost convolutions of the spring by means of a suitable rivet 10 so as to prevent the spring from expanding beyond the diameter of the drum so that there will be no danger of flying of the spring when it is placed within or removed from the drum. This securing together of these convolutions does not in any way interfere with the spring action and does not detract to any appreciable extent from the power to be derived from the spring when under tension.

The other feature of the invention consists in the provision of a sleeve 11 of a size to be slipped over the tubular shaft B and secured to the inner end of the spring by means of a suitable rivet 12. At a point opposite the rivet 12 the sleeve 11 is formed with a longitudinal slot 13 which is actually formed by splitting and expanding the sleeve and the purpose of which is to slidably engage upon the lug F which projects from the tubular shaft and which is already in existence on spring motors.

In placing the spring in position within the drum it is apparent that it is merely necessary to slip the sleeve 11 over the tubular shaft, the slot permitting the action, and to engage the slot D in the outer end of the spring upon the ordinary lug E. The spring of course operates in exactly the same manner as the ordinary spring and when it is wound the lug F engages against one edge of the slot 13 so as to maintain the drive connection. In the event of any mis-

hap which might cause a backlash, it will be apparent that the other edge of the slot in the sleeve will engage the lug F and prevent any great degree of movement.

From the foregoing description and a study of the drawings it will be apparent that I have thus provided a simple means for securing the inner end of a spiral spring upon its winding shaft and it will also be apparent that I have provided means for restraining excessive expanding action of the spring so as to make it thoroughly safe to handle in making repairs or replacements to spring motors.

While I have shown and described the preferred embodiment of my invention, it is of course to be understood that I reserve the right to make such changes in the form, construction and arrangement of parts as will not depart from the spirit of the invention or the scope of the subjoined claims.

I claim:—

1. A spiral motor spring having its outermost convolutions secured permanently together.

2. A spiral motor spring having its outermost convolutions secured permanently together, the point of securing together being spaced considerably from the outer end of the spring.

3. Means for securing a spiral motor spring upon its winding shaft, comprising a headed lug extending radially from the winding shaft, and a slotted sleeve slidably engaged upon the winding shaft with the slot receiving the lug, with the head of the lug engaging exteriorly upon the sleeve, said sleeve being secured to the inner end of the spring.

4. Means for securing the inner end of a spiral motor spring upon its winding shaft, the winding shaft having a radially projecting headed lug thereon, comprising a split sleeve slidably engaged upon the shaft, the sleeve being expanded to define a slot between the edges of the split, said slot being engaged upon the lug, said sleeve being secured to the inner end of the spring.

5. Means for securing the inner end of a spiral motor spring upon its winding shaft, the winding shaft having a projecting lug thereon, comprising a split sleeve slidably engaged upon the shaft, a slot defined between the edges of the split, said slot being engaged upon the lug, said sleeve being secured to the inner end of the spring.

In testimony whereof I hereto affix my signature.

JOSEPH C. CLARK.