

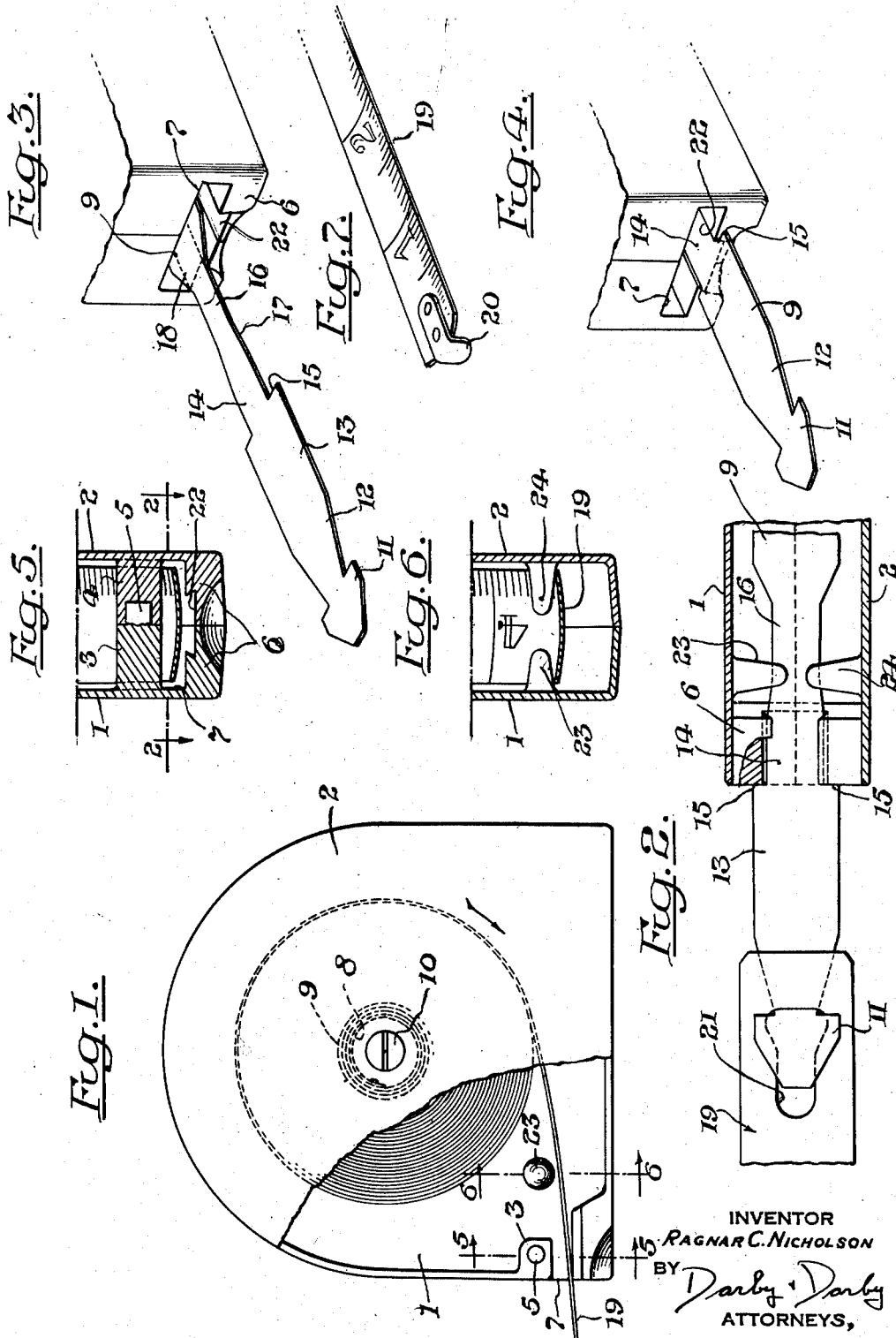
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SPRING LOCK FOR STEEL TAPE RIBBON

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SPRING LOCK FOR STEEL TAPE RIBBON

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This invention relates to an improvement in steel tape rules adapted to facilitate and simplify the changing of the graduated blade of a steel tape rule.

Rules of this type commonly consist of a graduated blade and a coil spring attached to the inner end thereof for aiding in retraction of the blade into a housing. As the graduated blade is of spring steel it is subject to breakage requiring replacement for this reason, or when the blade is worn out by defacement.

The graduated blade is in most cases detachably secured at its inner end to the outer end of the coil spring by some form of attaching device. In order to replace the blade it is necessary to fully withdraw it from the casing so that the end of the coil spring protrudes. This places the spring under maximum tension tending to withdraw it into the casing. It follows, therefore, that any carelessness in holding the protruding end of the spring while the blade is being changed will result in sudden retraction of the spring end into the housing. It follows that the casing must then be taken apart to regain control of the spring end.

The general object of this invention is to provide a locking device for holding the spring end in projected relation to the casing while the damaged blade is being replaced.

More specifically an object of this invention is to so construct the end of the spring and the exit sill of the housing so that the spring can be interlocked therewith with its end protruding and thereby assure against retraction while the broken or damaged blade is being replaced.

In the accompanying drawings,

Figure 1 is a side elevational view of a steel tape rule of the type to which this invention is related, showing a portion of the housing broken away and a portion of the sill locked in elevation;

Figure 2 is a cross-sectional view taken on the line 2—2 of Figure 5;

Figure 3 is a perspective view of the housing at the tape opening showing the end of the coil spring protruding therefrom;

Figure 4 is a similar view showing the protruding end of the spring held in the sill lock;

Figure 5 is a cross-sectional view taken on the line 5—5 of Figure 1;

Figure 6 is a similar view taken on the line 6—6 of Figure 1; and

Figure 7 is a perspective view of the outer end of the graduated tape.

The housing consists of two substantially

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similar mating portions 1 and 2 which are usually die-cast. They consist of walls of suitable configuration having right angle peripheral flanges which meet in assembled relation to hold the walls so as to provide a chamber for the coil spring and graduated tape. These flanges may be provided with lugs 3 and 4 respectively, see Figure 5, which align when the housing portions are assembled. The lugs 3 are provided with pins 5 which seat in recesses in the cooperating lugs so as to accurately position the housing portion in assembled relation. The flanges at the bottom of the housing portions are relatively thick to provide a sill member 6 as shown in several of the figures, which lies below an opening 7 formed by cut-outs in the housing flanges. The housing portions are provided with aligned central posts which form a mandrel 8 to which the inner end of the coil spring 9 is attached. The housing portions are connected together by means of a screw 10 which passes through one mandrel portion and threadedly engages the other. All of these features of construction are quite common with some variation in detail in this art and involve no novelty as thus described.

The end of the coil spring 9 is provided with a pointed shoulder or T-shaped tip 11 contiguous with a tapered portion 12 which converges towards the tip portion. The tapered portion is contiguous to a rectangular portion 13, which in turn is integral with a tail portion consisting of a straightsided section 14 forming a pair of shoulders 15 providing an abutment at its point of union with portion 13. The tail portion of the spring includes another section 16 of uniform reduced width which is joined with the section 14 with a tapered portion 17 which diverges towards the tip end. The section 16 is joined with the main spring 9 by means of a final tapered section 18 which converges from the normal width of the spring 9 to the narrow straight sided section 16. It is clear that the terminal end of the spring is integral with it and is formed by changing the outlines of its side edges in the manner clearly indicated in Figures 2 and 3. The section 13 is of the same width as the main section 9, as explained.

The graduated tape 19 is of the concave-convex type carrying graduations on one or both faces thereof and is provided with the usual hook 20 at the outer end. The inner end of this graduated tape is provided, as is usual, with an opening 21 to receive the tip 11 to provide a detachable connection between the inner end of

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the tape 19 and the outer end of the coil spring 9, as clearly shown in Figure 2. The sill 6 which forms a bottom side of the housing opening 7 is provided with a dovetailed channel 22, which has a width at the base equal to the width of the section 14 of the spring. The housing portions 1 and 2 are provided with a pair of integrally opposed pins 23 and 24 respectively which are tapered towards their rounded ends, as clearly shown in Figure 2. When the housing portions are assembled these pins are aligned and spaced. The tip 11 of the spring lies on top of the tape 19 when the tape is connected to the spring so as to project above the top face of the tape 19. This forms a projection which might catch on the inner side of the opening 7, and as is clear from Figure 1, pins 23 and 24 are arranged so as to move the tape 11 downwardly to pass freely through the opening 7.

In order to detach the blade from the spring the blade is fully withdrawn from the housing, as well as the outer end of the spring until its section 16 reduced to a uniform width lies in the dovetailed channel 22. The spring is then allowed to move back into the housing until the wider section 14 lies in the base of the channel 22. The tapered section 17 tends to guide the spring so that it will thus seat in the channel. When thus seated the shoulders 15 engage the outer face of the housing and hold the spring locked so that its end protrudes, as clearly shown in Figure 4. The graduated tip 19 can then be easily replaced without danger of the spring snapping back into the housing. As soon as the new tape is attached the spring is pulled forward until it disengages the dovetailed channel 22, whereupon it can move back into the housing, retracting the graduated tape with it.

What is claimed is:

1. A steel tape rule comprising a housing having an opening and a guideway thereat, a coil spring mounted in said housing, a graduated tape detachably secured at its inner end to the outer end of said spring, and an abutment adjacent the outer end of said spring for engaging said housing at the opening when the spring lies in said guideway, with its end protruding from the housing through said opening.

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2. In the combination of claim 1, said graduated tape having an opening at its inner end and said spring having a T-shaped head detachably mounted in said opening, and a guide member mounted in said housing adjacent said housing opening for guiding the tip of said spring into locking position in said guideway as the outer end of the spring is withdrawn there-through.

3. In the combination of claim 1, said guideway comprising a channel formed in said housing at said opening and said abutment comprising shoulders formed near the outer end of said spring.

4. In the combination of claim 1, said guideway comprising a dovetailed channel formed in the housing at one side of said opening and said abutment comprising shoulders formed near the outer end of said spring by a section integral with said spring of a width equal to the width of the channel at the bottom thereof.

5. In the combination of claim 1, said abutment comprising shoulders formed near the outer end of said spring by a section of less width than the normal width of the spring connecting sections of normal width and said guideway comprising a channel formed in said housing at the opening in which the portion of the spring of less width seats with the shoulders against the housing.

6. A steel tape rule comprising a housing having an opening, a coiled spring mounted in said housing, a graduated tape detachably secured at one end to the free end of said spring, and cooperating means on the housing at the opening and on the free end of the spring provided for locking engagement when the free end of the spring extends through the opening of said housing to hold it in that position.

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REFERENCES CITED

The following references are of record in the file of this patent:

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