Dec. 18, 1962 S. O. ORTHWIN 3,068,580

GAUGE FOR SEWING AND NEEDLE WORK

Filed May 14, 1959

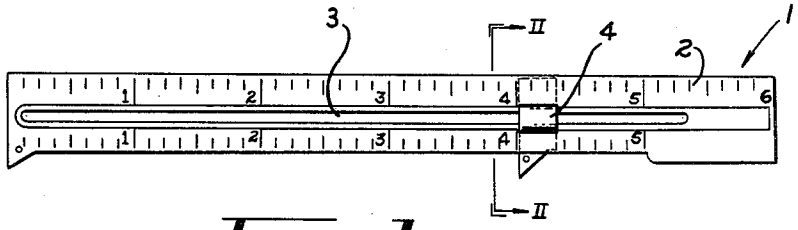


FIG 1

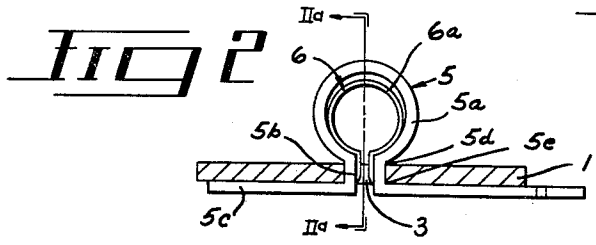


FIG 2

FIG 2a

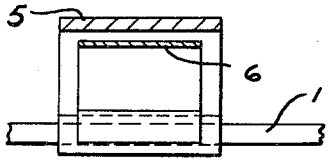


FIG 3

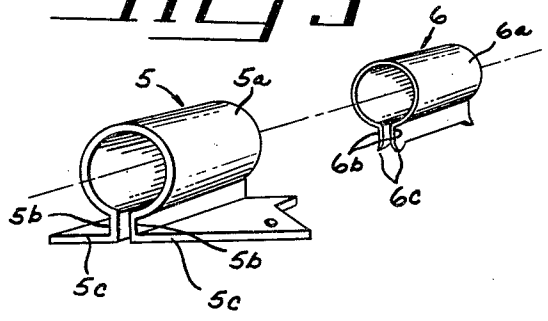
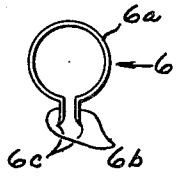


FIG 4



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3,068,580

Patented Dec. 18, 1962

3,068,580

GAUGE FOR SEWING AND NEEDLE WORK

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Filed May 14, 1959, Ser. No. 813,288

12 Claims. (Cl. 33—143)

The present invention relates to a gauge, especially a sewing and knitting gauge of the type comprising a slotted ruler and a slider with a pointer movable relative to said ruler.

Gauges of this type are well known. Thus, according to one of the heretofore known gauges of the type involved, the slotted ruler consists of a soft metal such as aluminum while the slider is made of steel and has one portion thereof extend upwardly through the slot in said ruler so as to be grasped and adjusted along said slot.

This known type of gauge has the drawback that the edges of the steel slider during the movement of the slider dig into the edges of the slot and actually tend to cut these edges. It will be appreciated that such slider actually represents a bent steel spring with a loop extending upwardly through the slot and with its legs spread apart underneath the ruler and away from the slot. Therefore, the legs are continuously pressed apart and must be pressed apart in order that the slider will tend to stay at that place in the slot to which it has been moved. On the other hand, the fact that the legs engaging the edges of the slot dig into said edges makes it impossible smoothly and easily to adjust the slider in the slot.

In an effort to overcome these drawbacks, it has been suggested to flare the outer edges of the slider adjacent the edges of the slot. With such an arrangement, however, the slider is still made of a spring type of hard material such as steel while the ruler is made of a soft material, as for instance aluminum, so that the slider still cuts or grinds the edges of the slot in the aluminum ruler. That this is so will best be evident when keeping in mind the method by which the slot is produced in the ruler. In order to be able to produce the ruler economically, the slot is punched out of the ruler. It is a well known fact in connection with such punching operations that the punch cuts only during the very initial phase of the punching operation whereupon the metal strip corresponding in size to the slot to be punched out of the ruler is torn out. This procedure, naturally, leaves considerable roughness along the edges of the slot and, consequently, the slider must slide over these rough edges and, being made of the harder material, naturally will with each movement in the slot cut or grind the edges of the latter. This fact not only makes it impossible smoothly to slide the slider by minute fractions precisely to the point desired, but the cutting action gradually widens the slot and makes the same uneven, which fact contributes still further to the unevenness of the movement of the slider.

It is, therefore, an object of the present invention to provide a gauge of the above mentioned type, which will overcome the above mentioned drawbacks.

It is another object of this invention to provide a gauge comprising a longitudinally slotted ruler of a relatively soft material with a slider extending through the slot and adapted easily and smoothly to be adjusted along the slot without the danger of cutting or grinding the edges of the slot.

It is a further object of this invention to provide a gauge slider which can easily be inserted into slotted gauge rulers and can easily and smoothly be adjusted thereon.

These and other objects and advantages of the invention will appear more clearly from the following specification in connection with the accompanying drawing, in which:

FIG. 1 illustrates a gauge according to the present invention.

FIG. 2 is a section along the line II—II of FIG. 1 but on a considerably larger scale than that of FIG. 1.

FIG. 2*a* is a section along the line II*a*—II*a* of FIG. 2.

FIG. 3 shows in perspective the components of a slider according to the present invention.

FIG. 4 is an end view of the spring used in connection with the slider of the invention.

Referring now to the drawing in detail, the gauge shown in FIG. 1 comprises a ruler **1**, preferably of a light metal as for instance aluminum, and is provided with markings **2**. The gauge furthermore comprises a slot **3** in which the slider **4** is slidably and adjustably mounted. The arrangement is such that the slider will tend to stay in its respective position by mere friction with the edge of the slot.

The slider according to the present invention is more clearly shown in FIG. 2. As will be seen from FIG. 2, the slider is actually composed of an outer part **5** made of a synthetic material, as for instance nylon, and an inner part **6** forming a spring, preferably of steel. The outer part **5** comprises a loop **5***a* with short leg portions **5***b* and long leg portions **5***c*. As will also be evident from FIG. 2, the outside of the short leg portions **5***b* is in full sliding engagement with the adjacent edges of slot **3**. Furthermore, the outer part **5** has sharp edges at **5***d* and **5***e* which substantially match with the adjacent sharp edges of the ruler **1** so that the outer part **5** of the slider is practically without any play guided in slot **3**. The inner part **6** of the slider which, as mentioned above, is a spring, preferably made of spring steel, likewise comprises a loop **6***a* which, however, is so shaped that the major upper portion of the loop is spaced from the inside of the loop **5***a* of the outer part **5**. The inner part or spring **6** of the slider is also provided with short legs **6***b* which are in engagement with the short leg portions **5***b* of the outer part **5** of the slider and due to the springiness of the spring **6** are firmly pressed against the short leg portions **5***b* thereby pressing these short leg portions **5***b* against the inner walls of slot **3**. Preferably, the lower front and rear ends of legs **6***b* are provided with an outwardly extending pointed tip or barb **6***c* which engages the relatively soft legs **5***b* of the outer part **5** so that the spring **6** is firmly anchored therein. While this arrangement with the tips is highly advantageous, it should be noted that the spring will also firmly be anchored by friction only without the said tips or barbs **6***c*.

The slider according to the present invention will smoothly move in the slot inasmuch as the outer part **5** is relatively soft and does not only not dig or cut into the metal walls of the slot, but as a matter of fact smoothes the same without grinding material off from said walls.

The spring within the outer part **5** of the slider is a very important part inasmuch as experience has shown that the outer part **5** of synthetic material, such as nylon, itself without the inner spring is not a useful slider. This is due to the fact that nylon has so-called cold flow which means that even if the nylon part **5** has a certain initial springiness, it loses this springiness after a short time in the slot so that the part **5** without the inner spring **6** would not properly stay at the respective marking to which it has been moved. Even though it cannot be avoided that the edges of the slot at the central portion of the slot will more easily deflect from each other than at the end portions of the slot, this will not harmfully affect the slider according to the present invention in view of the fact that the slider is equipped with sharp edges **5***d*, **5***e* as outlined above which are closely fitting the adjacent edges of the slot and thus hold the central slot

wall portions in proper alignment with each other. Moreover, the spring 6 arranged inside the outer part 5 always presses the short leg portions 5*b* against the respective inner wall portions of slot 3 no matter where the slider may be located so that the said short legs will always be in proper engagement with the respective adjacent wall portions of the slot. The spacing between the upper portion of the inner part of the loop of part 5 and the outer wall of the upper portion of the loop of spring 6 brings about that the pressure exerted by the spring upon the outer part 5 is concentrated where it is most needed namely upon the short leg portions 5*b* of the outer part 5.

According to a further development of the invention, the extension of the spring in longitudinal direction of the ruler is shorter than the extension of the nylon part in the same direction. In this way, for instance if the spring is arranged in the central portion of the outer part 5, the ends of the outer part 5 are slightly spaced from the adjacent ends of the spring. This has the advantage that the ends of the outer part 5 can yield easier in inward direction whereby the slider can adapt itself easier to any minor deviations in the width of the slot as they may occur. This is particularly clearly shown in FIG. 2*a* of the drawing.

The spring 6 is easily assembled in the outer part 5. To this end, it is merely necessary to press the spring 6 together and push it into the loop of the outer part 5. The thus produced slider assembly is then mounted on the ruler by deflecting the central oppositely located wall portions of the slot upwardly and downwardly respectively and then slipping the loop portion of the slider assembly from the bottom of the ruler through the slot. The slider assembly can, of course, be removed from the ruler in an inverse manner.

It is, of course, to be understood that the present invention is, by no means, limited to the particular construction shown in the drawing. Thus, while as synthetic material for the outer part of the slide assembly only nylon has been mentioned, it is, of course, to be understood that other synthetic materials having similar properties may be used as for instance TFE fluorocarbon such as the material known under the trade mark "Teflon" made by Du Pont or the material known under the trade mark "Nylatron GS" which is general purpose nylon containing molybdenum disulphide and made by the Polymer Corporation. Also the material "Kel-F" made by the Kellogg Chemical Company may be used as material for the outer part of the slide assembly according to the invention. Generally, any type of synthetic materials may be used for the outer part of the slide assembly that are both tough and have a low coefficient of friction, have good bearing qualities, can slide easily, and will not cut into or be cut easily by rough parts of the gauge.

What I claim is:

1. A gauge especially for sewing and needle work, which comprises in combination: a metallic ruler with longitudinal edge portions, a self-supporting slide made of synthetic material softer than the material of said metallic ruler and having leg portions in sliding engagement with said longitudinal edge portions of said ruler, and metallic spring means detachably inserted in said slide and engaging said leg portions so as continuously urging the same into frictional engagement with said longitudinal edge portions.

2. A gauge especially for sewing and needle work, which comprises: a metallic ruler with markings thereon and with a slot extending in longitudinal direction of said ruler, a slide made of a non-metallic material softer than the material of said metallic ruler and displaceable in said slot, said slide having a first section and a second section integral with each other, said first section comprising a loop above said slot and also comprising legs integral with said loop and extending into said slot, said second section comprising arms respectively integral with said legs and arranged below and in sliding engagement with said ruler and respectively extending in opposite directions with regard to each other and transverse to the longitudinal direction of said ruler, and spring means forming a separate element with regard to said slide and being arranged in said first section only and engaging said legs for continuously urging said legs apart against the respective adjacent ruler portions confining said slot, said slide and said spring means each forming a self-supporting element independently of each other.

3. A gauge according to claim 1, in which said slide is made of nylon.

4. A gauge according to claim 1, in which said slide is made of molybdenum di-sulphide impregnated nylon.

5. A gauge according to claim 1, in which said slide is made of a tetrafluoroethylene polymer.

6. A gauge according to claim 1, in which said metallic spring means is made of spring steel.

7. A gauge according to claim 2, in which said spring means has a loop portion located in the loop portion of said first section of said slide, the loop portion of said spring means having a diameter less than the loop portion of said slide so that a space of crescent-shaped cross section remains between said two loop portions.

8. As an article of manufacture, a slide for metallic rulers with a longitudinal slot therein, which comprises: a self-supporting first member comprising a loop portion and leg portions integral with said loop portion and consisting of a synthetic material softer than metal, said leg portions extending outwardly and in opposite direction with regard to each other at a point spaced from the respective adjacent ends of said loop portion, and a second member made of spring steel and detachably engaging said first member and comprising a loop portion arranged within the loop portion of said first member and also comprising leg portions engaging those parts of the leg portions of said first member which are located between the outwardly extending leg portions of said first member and the respective adjacent ends of said loop portion and continuously urging the leg portions of said first member away from each other.

9. An article of manufacture, according to claim 8, in which said first member is made of nylon.

10. An article of manufacture according to claim 8, in which said first member is made of a tetrafluoroethylene polymer.

11. An article of manufacture according to claim 8, in which said first member is made of a general purpose nylon containing molybdenum di-sulphide.

12. An article of manufacture according to claim 8, in which the loop portion of said second member has a diameter less than the loop portion of said first member to such an extent that a space of crescent-shaped cross section remains between said two loop portions.

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