

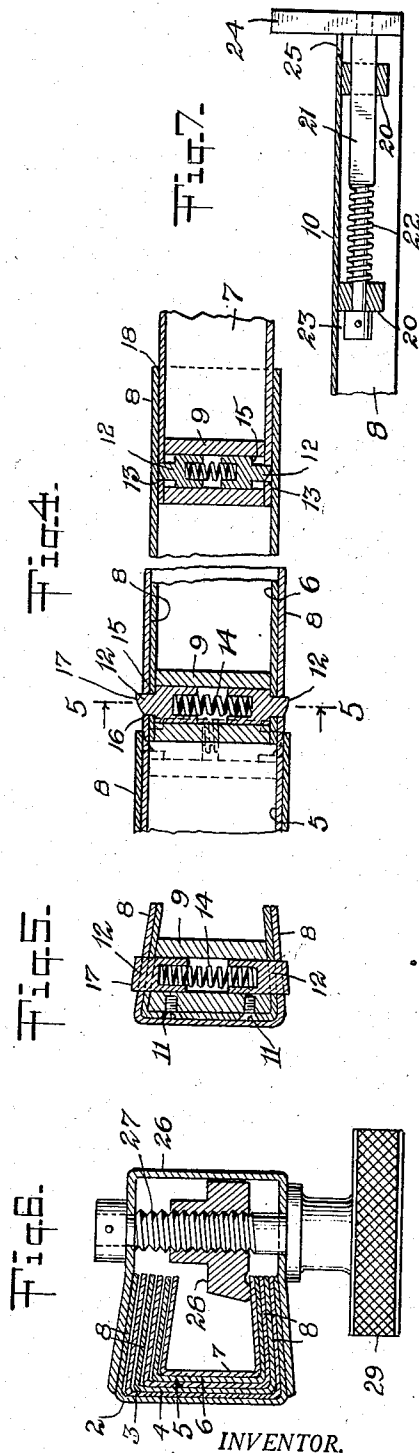
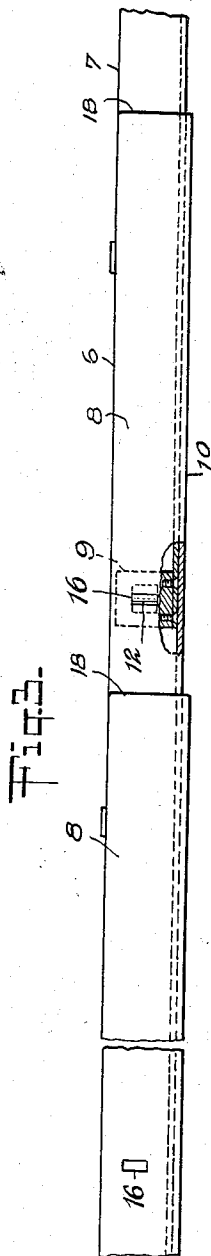
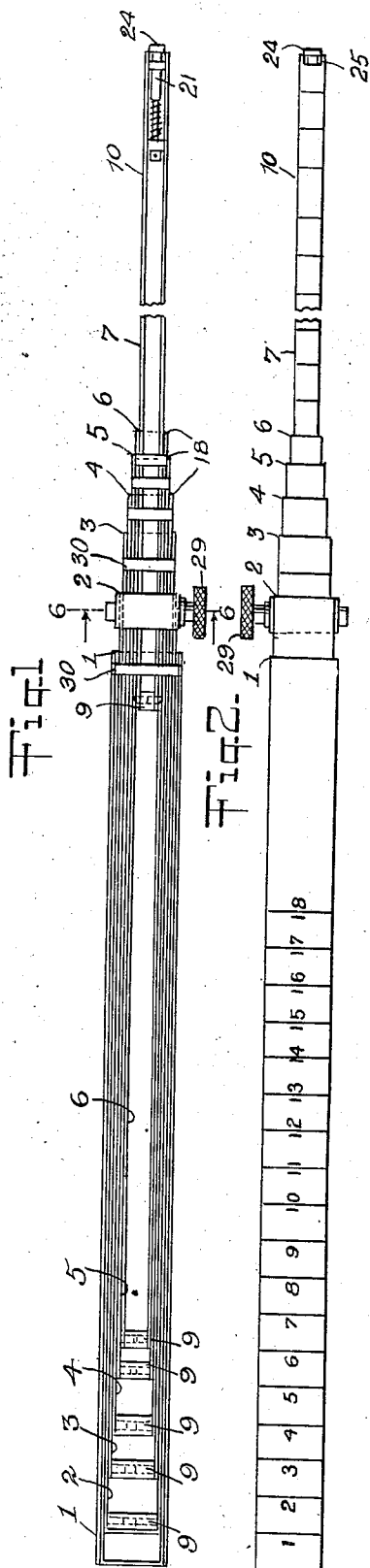
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EXTENSIBLE RULE

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2,356,544

EXTENSIBLE RULE

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5 Claims. (Cl. 33-161)

This invention relates to an extensible measuring rule comprising a series of sections which are slidably associated with one another in nested relationship and which may be extended and locked in end to end formation and collapsed by telescoping one section into another and is an improvement of my patents, Nos. 2,270,227, dated January 13, 1942, and 2,270,335, dated January 20, 1942.

Among the objects of the present invention is to provide improved means for automatically locking the rule sections in extended position and for automatically releasing them as the successive sections are telescoped into one another.

Another object is to provide a ruler which insures accurate measurements and which fits snugly against the object from which the measurements are to be taken and which will make possible accurate reproduction of the measurement thus taken without any special manipulation or adjustment of the rule.

A further object is to provide simplicity of operation, to save time in taking the measurements, to reduce the number of parts to a minimum, and generally to provide a rule which possesses an increased durability and stability of construction and ease of manipulation.

Other objects and advantages inherent in the invention will become apparent from the following specification taken in conjunction with the accompanying drawing which shows by way of example an embodiment of the inventive idea.

In the drawing:

Figure 1 is a back view of the rule according to the invention showing the end section fully and extended and locked in position and some of the other sections partly extended.

Figure 2 is a face view.

Figure 3 is a fragmentary side view drawn to an enlarged scale.

Figure 4 is a fragmentary longitudinal section drawn to an enlarged scale.

Figure 5 is a section taken along the line 5-5 of Figure 4.

Figure 6 is an enlarged section taken along the line 6-6 of Figure 1.

Figure 7 is an enlarged fragmentary sectional view of the end rule section.

Throughout the drawing the same reference characters serve to indicate same or analogous parts.

Referring in greater detail to the drawing, the improved rule comprises a series of channel-shaped sections 1, 2, 3, 4, 5, 6 and 7 which are slidable within one another so that when the rule

is collapsed, the several sections will be arranged in nested telescoping relationship. It will of course be understood that the number of sections is determined from practical reasons, and may be more or less than the number shown in the drawing. The various sections are preferably made of steel for the purpose of imparting a high degree of rigidity to the rule but may of course be made of any other suitable material.

The side walls 8 of each section are preferably slanted inwardly in order to prevent them from becoming disengaged from one another.

Adjacent the interior end of each section, except section 1, a cross bar 9 is anchored firmly in the bottom wall 10 of each channel member by means of screws 11. This cross bar is bored to provide bearings for the locking bolts 12 which are urged outwardly through the slots 13 in the side walls of the corresponding section by means of the spring 14 which is accommodated in recesses in the bolts. The bolts are also provided with a shoulder 15 to limit their outward projection through the slots 13. It will be noted, however, that when the rule is collapsed, or while one section is slid within another section, the locking bolts are pressed inwardly by the side wall of the adjacent or surrounding section so that the shoulder 15 will be spaced from the slots 13 as shown at the right in Figure 4.

The side walls of each section, except the end section 1, or, in other words, each telescoped section, is provided adjacent to its outer or open end with a pair of slots 17 into which the locking heads snap as the sections are pulled out, thus locking two sections together. Further extension of the first section will drag along the next succeeding section until the locking bolts of the latter snap into the slots 16 of the next succeeding section and so on.

The locking bolts 12 are provided with a cammed surface 17 slanting rearwardly with respect to the extension movement. That part of the locking bolts projecting through the slots 16 and the cammed surface are so proportioned and arranged that they will firmly interlock two adjacent sections in extended position as shown to the right of Figure 4. As the telescoping sections are pushed back into the telescoped sections, the edges 18 will ride on the cammed surface 17 and thus press the locking bolts 12 into the slots 16 until the edges 18 have been fully cleared. The bolts 12 will then be in position shown in dotted lines in Figure 4. As the section 6 is further telescoped into section 5, the edge of the slots 16 will ride on the cammed surface 17 and thus the lock-

ing bolts will become fully disengaged from the slots as shown to the right of Figure 4 with respect to sections 6 and 7, so that the released section can be returned to its original nested position. Each section will become successively unlocked in the same manner upon the occurrence of the telescoping movement until the entire rule has been completely collapsed.

The rule is provided with numbered scale markings upon the face thereof which is formed by the bottom wall 10 of the channel members. The numbers or markings may be arranged in any suitable manner such as, for example, described in my Patent No. 2,199,364.

The outer end of the end rule section 7 is provided with a pair of spaced fixed bearing blocks 20 in which the bar 21 is mounted for longitudinal reciprocation. The bar 21 has a reduced portion about which is wound the expansion spring 22 which abuts against the bearing block. The spring 22 normally holds the bar in extended position which is limited by the collar 23 abutting against the block 20. The outer extremity of bar 21 is provided with a hook 24 which extends at right angle thereto and a slot 25 is provided in the face wall or bottom wall 10 for accommodating this hook when pressed into the end section 7. The depth of the slot corresponds to the thickness of the hook so that the outer surface of the end section 7 when the hook is fully depressed into the slot. The bar 21 is also so adjusted by means of the collar 23 that normally the inner surface of the hook will be in registry with the outer edge of the end section 7.

In operation the hook member 24 is pushed against the object from which the measurement is to be taken until it is fully depressed into the slot 25. When reproducing the measurement thus taken, the hook is simply caught over the edge of the object. It will be seen that by virtue of this arrangement the rule can be applied to the object and accurate measurements may be taken from considerable distances without any special aid to adjust or manipulate the end of the rule.

A special friction lock of the type described in my Patent No. 2,270,355 may be provided for the purpose of locking telescoped and partly extended section together in the attained positions. This lock comprises a yoke or bridge 26 which is fixed to the side walls of section 2 and provides bearing means for the threaded shaft 27. A clamping block 28 engages the shaft 27 and is moved into clamping position against the side walls of the rule sections simply by rotating the hand wheel 29.

The side walls 8 are interconnected by cross pieces 30 which enhance the rigidity of the structure and further tends to maintain the sections in place.

It will be understood that the foregoing description is given by way of example and not by way of limitation. On the other hand, the invention may lend itself to a variety of expressions within the scope of the following claims.

What is claimed is:

1. A measuring rule comprising a series of channel shaped sections, each of said sections being frictionally slidable within one another in nested telescoping relationship, at least one spring urged member projecting from the side wall of each of the telescoping sections adjacent the inner end thereof and a slot adjacent the outer end of each of the telescoped sections for

receiving said spring urged member to lock said sections in extended position, said spring urged member having its longitudinal axis extending transversely to the side walls of said channel sections and having a straight surface for engaging the forward edge of said slot to positively lock said sections against further extension of the rule and a rear surface slanting inwardly to a point inside the outer edge of the telescoped section so that said outer edge will ride on said slanting surface and depress said spring urged member upon the occurrence of the telescoping movement whereby said sections will become successively unlocked.

2. An extensible measuring rule comprising a series of telescoping sections, a spring urged member mounted for longitudinal reciprocation in the end of one of said sections and having its longitudinal axis extending parallel to the longitudinal axis of said end section, a hook extending from said end section at a right angle thereto, the undersurface of said hook normally being in registry with the outer edge of said end section, a slot in said end section for accommodating said hook, said slot having such depth that the outer surface of said hook will be in registry with the edge of said end section when the hook will be in registry with the edge of said end section when the hook is pushed against an object from which the measurement is to be taken.

3. A measuring rule comprising a series of channel shaped sections, each of said sections being frictionally slidable within one another in nested telescoping relationship, at least one spring urged member projecting from the side wall of each of the telescoping sections adjacent the inner end thereof and a slot adjacent the outer end of each of the telescoped sections for receiving said spring urged member to lock said sections in extended position, said spring urged member having its longitudinal axis extending transversely to the side walls of said channel sections and having a straight surface for engaging the forward edge of said slot to positively lock said sections against further extension of the rule and a rear surface slanting inwardly to a point inside the outer edge of the telescoped section so that said outer edge will ride on said slanting surface and depress said spring urged member upon the occurrence of the telescoping movement whereby said sections will become successively unlocked, a spring urged member mounted for longitudinal reciprocation in the end of one of said sections, and having a hook extending from said end section at a right angle thereto, the undersurface of said hook normally being in registry with the outer edge of said end section, a slot in said end section for accommodating said hook, said slot having such depth that the outer surface of said hook will be in registry with the edge of said end section when the hook is pushed against an object from which the measurement is to be taken.

4. A measuring rule comprising a series of channel shaped sections, each of said sections being frictionally slidable within one another in nested telescoping relationship, at least one spring urged member projecting from the side wall of each of the telescoping sections adjacent the inner end thereof, a slot adjacent the outer end of each of the telescoping sections for receiving said spring urged member to lock said sections in extended position, said spring urged member having its longitudinal axis extending transversely to the side wall of said channel sec-

tions, said spring urged member having a straight surface for engaging the edges of the slot to positively lock said sections against further movement, and a cammed surface for engaging the outer edge of the section to be next telescoped so that said spring urged member will be depressed into said slot upon occurrence of the telescoping movement and whereby said sections will be successively unlocked.

5. A measuring rule comprising a series of channel shaped sections, each of said sections being frictionally slidable within one another in nested telescoping relationship, at least one spring urged member projecting from the side wall of each of the telescoping sections adjacent the inner end thereof and a slot adjacent the outer end of each of the telescoping sections for receiving said spring urged member to lock said sections in extended position, said spring urged member having its longitudinal axis extending transversely to the side wall of said channel sec-

tions, said spring urged member having a straight surface for engaging the edges of the slot to positively lock said sections against further movement, and a cammed surface for engaging the outer edge of the section to be next telescoped so that said spring urged member will be depressed into said slot upon occurrence of the telescoping movement and whereby said sections will be successively unlocked, a spring urged member mounted for longitudinal reciprocation in the one end of said sections, and having a hook extending from said end section at a right angle thereto, the undersurface of said hook normally being in registry with the outer edge of said end section, a slot in said end section for accommodating said hook, said slot having such depth that the outer surface of said hook will be in registry with the edge of said end section when the hook is pushed against an object from which the measurement is to be taken.

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