

N. E. SMITH.
 ANGLE SCALE ATTACHMENT FOR FOLDING RULES.
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1,121,303.

Patented Dec. 15, 1914.

Fig. 1,

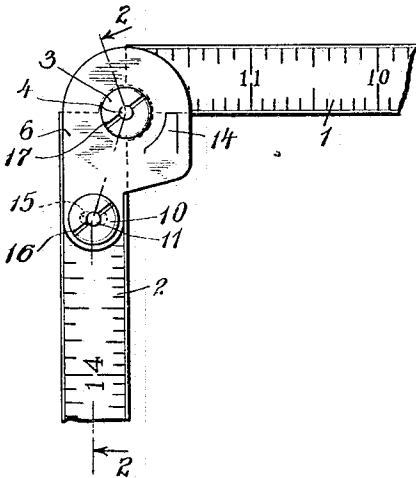


Fig. 3,

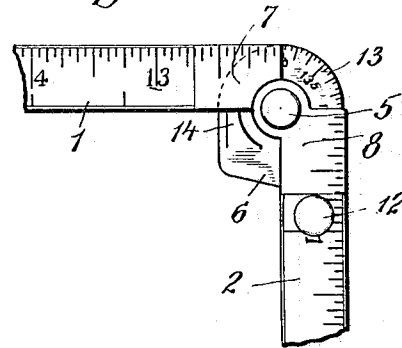


Fig. 2,

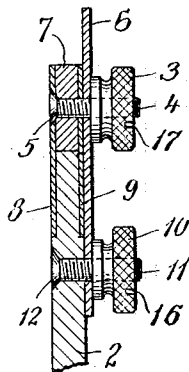
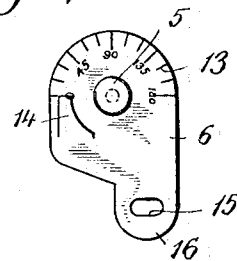


Fig. 4,



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ANGLE-SCALE ATTACHMENT FOR FOLDING RULES.

1,121,303.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, NATHANIEL E. SMITH, a citizen of the United States, and resident of Elizabeth, New Jersey, have made a certain new and useful Invention Relating to Angle-Scale Attachments for Folding Rules, of which the following is a specification, taken in connection with the accompanying drawing, which forms part of the same.

This invention relates especially to angle scale attachments for use with two-foot folding rules, for instance, so that they can be readily supplied with an angle scale and also with a right angle stop or alining device enabling them to be used as a try-square for general carpentry and joiner work, and so forth.

In the accompanying drawing showing in a somewhat diagrammatic way an illustrative embodiment of this invention, Figure 1 is a side view showing the attachment in place on a folding rule. Fig. 2 is an enlarged transverse section thereof taken substantially along the line 2—2 of Fig. 1. Fig. 3 is a back view; and Fig. 4 shows the angle scale before being applied to the rule.

This angle scale attachment may be used in connection with many forms of folding rules and may with advantage be used in connection with the standard two-foot carpenter's rule such as shown in Fig. 1 as comprising the two rule members 1, 2 provided with the usual joint members 7, 8 and also provided, if desired, with brass edge strips as indicated. The angle scale may be formed of spring brass or other suitable sheet metal and is preferably provided with a circular graduated portion 13 of somewhat less diameter than the combined width of the adjacent joint members 7, 8. The attachment also comprises one or more clamping and holding bolts and nuts, preferably of such size that one of these bolts may be readily substituted by the ordinary carpenter for the regular hinge pin which is used to connect the two joint members 7, 8 in the commercial rule. For this reason the bolt 4 is preferably made with a shank of practically the same diameter as the standard hinge pins and preferably with a somewhat reduced conical head 5 which can be forced into that side of the joint by a hammer or otherwise so that it may be made substantially flush with the joint members. A suitable clamping device or nut such as

3 is provided to cooperate with the free end of this bolt and clamp the joint members firmly in any desired position and also hold the angle scale 6 thereto. The clamping device may be in the form of a thumb nut as indicated which is preferably provided with a slot such as 17 with which a screw driver or spanner may cooperate to make the part especially tight when desired.

It is desirable to have a suitable stop device so as to readily and accurately determine the right angle position of the scale members which is of course more commonly used than other angular positions. A right angle spring stop for this purpose, such as 14, may be conveniently formed in the angle scale by stamping out a spring tongue from the sheet metal forming the scale in such position as to snap under one of the joint members when the rule is swung open and then accurately determine the right angle position of the rule member as it is brought back close against the stop. The right angled position of the parts is thus instantly and almost automatically secured and the ordinary folding scale can then be used effectively as a try-square if the members or arms are secured in this right angle position by tightening up the clamping nut, and an extra thickness or depth can be secured in one of these rule members by doubling back on each other the two six-inch sections on one side of the right angle while the two six-inch sections of the rule are left extended on the other side.

The angle scale may be firmly secured to one of the rule members or arms in any desired way and for some purposes it is especially desirable to have this connection adjustable when an angle stop is used. For this purpose the angle scale may be provided with a holding arm such as 16 which may be of about the same or preferably slightly less width than the rule member 2 to which it is to be secured and a suitable adjusting slot such as 15 may be made in the end of this holding arm as shown in Figs. 1 and 4. The position of this holding slot or aperture is preferably arranged so that it is the same distance from the main pivot joint as the usual alining pin projecting into each end of these two-foot rules when they are folded together. In this way the workman can pull out one of these alining pins and enlarge the hole in this part of the

wooden rule member sufficiently to insert therein the holding bolt 11 which may be formed with a conical reduced head 12 so that it can be readily countersunk and made substantially flush with the surface of the rule member 2. This bolt passes through the adjusting slot 15 and the holding member of the angle scale can be readily held in any desired position by a holding device or nut such as 10 which may also be provided with a screw driver or other tightening slot 17, if desired. This makes it possible to bring the rule member 1 into engagement with the right angle spring stop 14 and then accurately adjust the holding member on the other rule member or arm 2 so that an exact right angle is then formed between the parts and readjustments can be readily made from time to time.

The graduations 13 on the angle scale cooperate with the reduced end or face of the joint member 7 so that the rule members can thus be set readily and quickly to any desired angle and by making the diameter of the scale member less than the width of the rule accurate measurements can be made of internal angles which is desirable.

This invention has been described in connection with a number of illustrative embodiments, forms, proportions, materials, numbers and arrangements of parts, to the details of which disclosure the invention is not of course to be limited since—

What is claimed as new and what is desired to be secured by Letters Patent is set forth in the appended claims.

1. The angle scale folding rule comprising cooperating rule members having metal joint members adapted to be pivotally connected together, a sheet metal angle scale having a graduated circular portion of less diameter than the combined width of the adjacent joint members and having a projecting holding arm of less width than the cooperating rule member and provided with an adjusting slot, a right angle spring stop formed in said angle scale by stamping out a resilient tongue therefrom to snap into the path of the cooperating joint member, a clamping bolt about which said joint members swing having a reduced conical head substantially flush with said joint members and a clamping nut cooperating with said bolt and engaging said angle scale and clamping it closely against said joint members, a holding bolt extending through said adjusting slot and having a reduced conical head substantially flush with the adjacent rule member and a holding nut on said bolt to firmly hold said angle scale in alinement with said rule member.

2. The angle scale folding rule comprising cooperating rule members having metal joint members adapted to be pivotally connected together, a sheet metal angle scale

having a graduated circular portion of less diameter than the combined width of the adjacent joint members and having a holding arm provided with an adjusting slot, a spring stop formed in said angle scale by stamping out a resilient tongue therefrom to snap into the path of the cooperating joint member, a clamping bolt about which said joint members swing having a head substantially flush with said joint members and a clamping nut cooperating with said bolt and engaging said angle scale and clamping it closely against said joint members, a holding bolt extending through said adjusting slot and having a head substantially flush with the adjacent rule member and a holding nut on said bolt to firmly hold said angle scale in alinement with said rule member.

3. The angle scale folding rule comprising cooperating rule members having metal joint members adapted to be pivotally connected together, a sheet metal angle scale having a graduated portion of less diameter than the combined width of the adjacent joint members, and provided with an adjusting slot, a spring stop on said scale to engage the cooperating joint member, a clamping bolt and a clamping nut cooperating with said bolt and engaging said angle scale and clamping it closely against said joint members, and a holding device extending through said adjusting slot to firmly hold said angle scale in alinement with said rule member.

4. The angle scale folding rule comprising cooperating rule members having pivoted joint members, a sheet metal angle scale having a graduated portion and having a projecting holding arm, and a spring stop formed in said angle scale by stamping out a resilient tongue therefrom to snap into the path of the cooperating joint member, a clamping device engaging said angle scale and clamping it closely against said joint members, and a holding device cooperating with said holding arm to firmly hold said angle scale in alinement with one of said rule members.

5. The angle scale attachment for folding rules, comprising a sheet metal angle scale having a graduated circular portion and having a projecting holding arm provided with an adjusting slot, and a right angle spring stop formed in said angle scale by stamping out a resilient tongue therefrom, a clamping bolt having a head substantially flush with the adjacent parts and a clamping nut cooperating with said bolt, a holding bolt to extend through said adjusting slot and having a head substantially flush with the adjacent parts and a holding nut on said bolt.

6. The angle scale attachment for folding rules, comprising a sheet metal angle scale having a graduated portion and having a holding arm provided with an adjusting

slot, and a right angle spring stop formed in said angle scale by stamping out a resilient tongue therefrom, a clamping bolt having a clamping nut cooperating with said bolt, a holding bolt to extend through said adjusting slot and a holding nut on said bolt.

7. The angle scale attachment for folding rules, comprising a sheet metal angle scale

having a graduated portion, and a right angle spring stop formed in said angle scale by stamping out a resilient tongue therefrom and a cooperating clamping device.

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."