Nov. 12, 1940. W. GARDNER 2,221,088

MARKING OR SETTING OUT TOOL

Filed Aug. 9, 1939

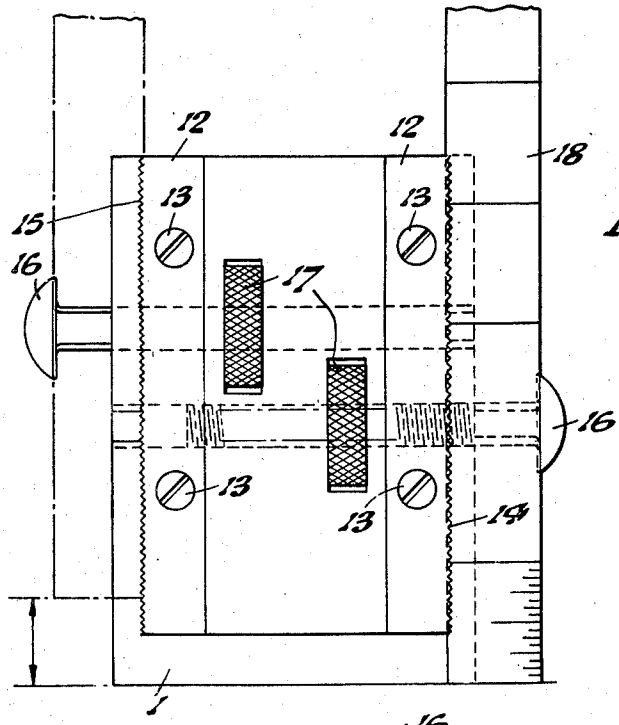


Fig. 1.

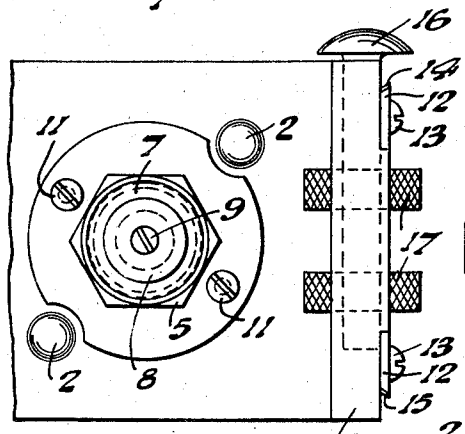


Fig. 3.

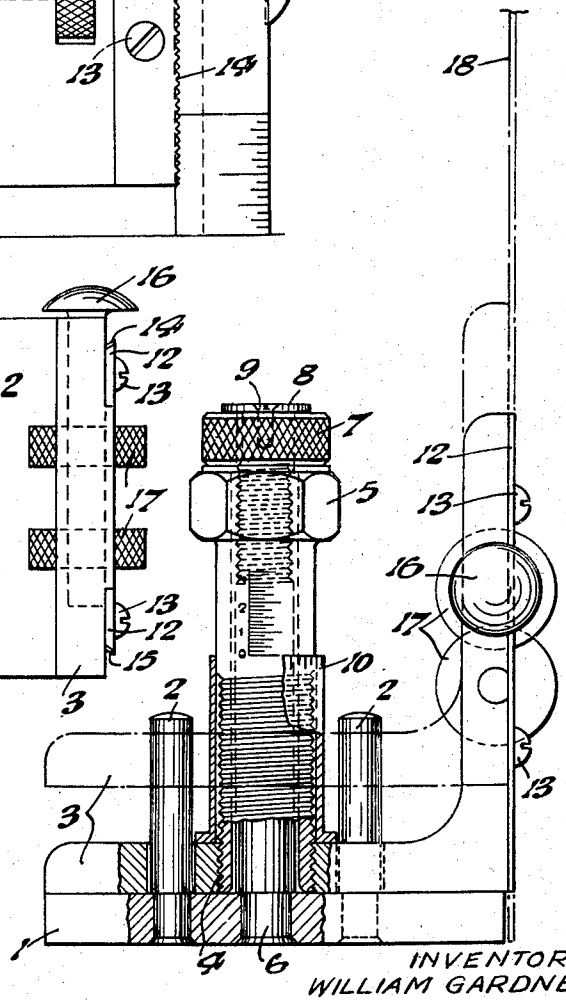


Fig. 2.

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Patented Nov. 12, 1940 2,221,088

UNITED STATES PATENT OFFICE

2,221,088

MARKING OR SETTING OUT TOOL

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Application August 9, 1939, Serial No. 289,196
In Great Britain August 24, 1938

9 Claims. (Cl. 33—173)

In engineering practice it is often necessary to mark off or set out widely dissimilar dimensions on work pieces and in repetition work it wastes time and is fatiguing to have to repeat the measuring operation for each work piece. In particular, when it is necessary to set off a dimension on a work piece from a datum line some distance above the base of the work piece, which has probably been ground or surfaced up, considerable skill is needed to determine when the zero mark on the rule is accurately aligned against the marking off point.

The object of the present invention is to provide a device which enables one or more rules to be held erect together in such manner that their zero readings can be aligned with or relatively to the plane of a surface upon which the device rests. Any desired dimension can be transferred from the rules on to the work piece by means of scribing block tools or the like.

According to this invention a device for the purpose set forth comprises a base, a support of L shape cross-section carried on said base and vertically adjustable in relation thereto and means for securing to the outer face of the upright portion of said support one or more graduated rules or scales whereby the rules or scales may be set out to read from the surface upon which the device rests or from any selected distance above said surface.

In practice the base is preferably made of hardened steel and is ground and squared up for use upon a surfaced plate. The support may be secured in position on the base by means of projections which extend upwardly from the base and engage with the horizontal portion of the support so as to locate the latter and guide it when it is moved up or down in relation to the base. Movement may be imparted to the support by means of a bolt threaded into an aperture in the horizontal part of the support, the lower end of the bolt resting on the base. Locking means may be provided so that the bolt may be secured against rotation when the support has been set in any desired position, and rigidity of the structure may be assisted by the provision of a sleeve surrounding the bolt and secured to the horizontal portion of the support; since relative movement occurs between this sleeve and the bolt as the support is raised or lowered, scale markings may be provided on the bolt or on both bolt and sleeve so that the support may be set at a predetermined height above the surface upon which the device stands without reference to rules or scales carried by the device.

As previously indicated the rules or scales are carried on the outer surface of the upright portion of the support. For securing a pair of rules or scales in this position there may be provided on the face of the upright portion of the support a pair of vertical stop strips adapted each to engage with one edge of a rule pressed against it, for instance by a bolt engaging with the other edge. Thus a bolt may be provided in a horizontal bore in the thickness of the upright portion of the support, a nut being threaded on to the bolt and located in a slot piercing this upright portion.

The accompanying drawing illustrates an embodiment of the invention. In the drawing Fig. 1 is a front elevation of the device showing a pair of rules or scales in position.

Fig. 2 is a side elevation in part section of the device, and,

Fig. 3 shows a part of a plan view of the device with one bolt and both rules or scales removed.

Referring to the drawing the device comprises a base 1 of hardened steel, the underside of which is ground and squared up, having secured therein a pair of dowel pins 2 adapted to locate and guide a support 3 provided with a screw-threaded aperture 4 into which is threaded a bolt 5, the lower end of which rests upon the base plate 1. The bolt 5 is drilled concentrically and a thin locking bolt 6 secured to the base 1 passes upwardly through the bore in the bolt 5, a milled-edge locking nut 7 provided on the threaded end of the bolt 6 and a disc 8 secured thereto by a screw 9 threaded in the top of the bolt 6 to prevent removal of the milled nut 7. By arranging that the milled-edge locking nut 7 turns through only 90°, i. e. one-quarter turn, between the top of the bolt 5 and to disc 8 and in so doing moves vertically only four- or five-thousandths of an inch, a securitive locking of the bolt 5 is obtained when the locking nut 7 is screwed up tight against it. When the bolt 5 is thus locked against rotation vertical movement of the support 3 is prevented. A flanged sleeve 10 secured to the support 3 by screws 11 adds rigidity to the structure by supporting the bolt 5.

As shown in the drawing scale markings may be provided on the bolt 5 between its head and its threaded portion, the upper edge of the sleeve 10 registering with zero when the support is resting on the base 3. Micrometer adjustment may be provided by marking the rim of the sleeve accordingly and providing an indicator mark on the bolt, e. g. if the bolt is marked in tenths of an inch and the perimeter of the sleeve marked

off in tenths it is possible to adjust the height of the support to 1/100 of an inch.

Upon the outside face of the upright portion of the support 3 there are provided stop strips 12 secured by means of screws 13 and having edges which are undercut as at 14 and toothed as at 15. Bolts 16 pass through horizontal bores in the thickness of the upright portion of the support 3 and are fitted on their threaded portions with milled nuts 17, having a good working fit in the slots provided for them the arrangement being such that rules or scales 18 are gripped between the heads of the bolts 16 and the edges 15 of the stop strips 12 when the nuts 17 are tightened.

In use a scale or rule is inserted between a stop strip 12 and the head of the corresponding bolt 16 and arranged so that the zero reading corresponds to the surface upon which the device rests, or is at any desired distance above this surface. A second rule or scale can be inserted in the other holder with its zero at any predetermined height so that with the aid of the device two sets of markings or readings can be carried out simultaneously.

When it is desired to mark off or measure from a point above the surface on which the device rests, the support is raised to the desired height by turning the bolt 5 and can be locked in this position by means of the nut 7.

I claim:

1. A marking or setting out tool comprising a base having a flat lower face, a support of L shape cross-section carried on said base and vertically adjustable in relation to the lower face of said base, and means for securing to the outer face of the upright portion of said support at least one graduated scale whereby said scale may be set to read from the surface upon which the lower face of the tool rests or from any selected distance above said surface.

2. A marking or setting out tool comprising a base having a flat lower face, a plurality of vertically extending projections on the upper face of said base, a support of L shape cross-section carried on said base and vertically adjustable in relation to the lower face of said base, a plurality of guide-ways for said projections situated in the horizontal portion of said support so as to locate and guide the latter when it is moved vertically relatively to said base and means for securing to the outer face of the upright portion of said support at least one graduated scale whereby said scale may be set to read from the surface upon which the tool rests or from any selected distance above said surface.

3. A marking or setting out tool comprising a base having a flat lower face, a plurality of vertically extending projections on the upper face of said base, a support of L shape cross-section carried on said base, a plurality of guide-ways for said projections situated in the horizontal portion of said support so as to locate and guide the latter when it is moved vertically relatively to said base, a bolt threaded in an aperture in the horizontal portion of said support, the lower end of said bolt bearing on said base so that rotation of said bolt moves said support vertically with respect to the lower face of said base, and means for securing to the outer face of the upright portion of said support at least one graduated scale whereby said scale may be set to read from the surface upon which the tool rests or from any selected distance above said surface.

4. A marking or setting out tool comprising a base having a flat lower face, a plurality of vertically extending projections on the upper face of said base, a support of L shape cross-section carried on said base, a plurality of guide-ways for said projections situated in the horizontal portion of said support so as to locate and guide the latter when it is moved vertically relatively to the lower face of said base, a bolt threaded into an aperture in the horizontal portion of said support, the lower end of said bolt bearing on said base so that rotation of said bolt moves said support vertically with respect to the lower face of said base, a flanged sleeve secured to the horizontal portion of said bolt and surrounding said bolt, graduations on a portion of said bolt extending beyond said sleeve and registering with the upper rim thereof and means for securing to the outer face of the upright portion of said support at least one graduated scale whereby said scale may be set to read from the surface upon which the tool rests or from any selected distance above said surface.

5. A marking or setting out tool as claimed in claim 4 wherein micrometer adjustment is provided comprising graduations marked on the perimeter of the sleeve and an indicator mark on said bolt.

6. A marking or setting out tool as claimed in claim 1 wherein locking means are provided so that the support can be secured in any desired position in relation to the base.

7. A marking or setting out tool as claimed in claim 4 comprising locking means operated to secure the support in any desired position in relation to the base.

8. A marking or setting out tool as claimed in claim 1 wherein the means for securing to the outer face of the upright portion of the support at least one graduated scale comprises a plurality of vertical steps upon the outside face of the upright portion of the support adapted to engage with one edge of a scale, a bolt, the head of which is adapted to engage with the opposite edge of said scale and adapted to pass through a horizontal bore in the thickness of the upright portion of the support, and a nut threaded on to the bolt and located in an aperture piercing said upright portion, rotation of the nut causing the bolt head to move towards or away from the vertical steps so as to lock or unlock the scale therebetween.

9. A marking or setting out tool as claimed in claim 4 wherein the means for securing to the outer face of the upright portion of the support at least one graduated scale comprises a plurality of vertical steps upon the outside face of the upright portion of the support adapted to engage with one edge of a scale, a bolt, the head of which is adapted to engage with the opposite edge of said scale and adapted to pass through a horizontal bore in the thickness of the upright portion of the support, and a nut threaded on to the bolt and located in an aperture piercing said upright portion, rotation of the nut causing the bolt head to move towards or away from the vertical steps so as to lock or unlock the scale therebetween.

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