

Aug. 23, 1966

C. MAHR

3,268,197

CLAMPING DEVICE FOR MEASURING INSTRUMENTS

Filed April 15, 1964

Fig. 2.

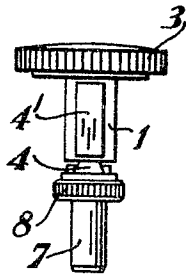


Fig. 1.

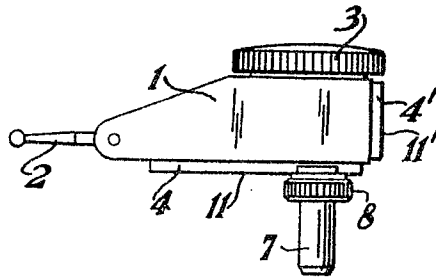
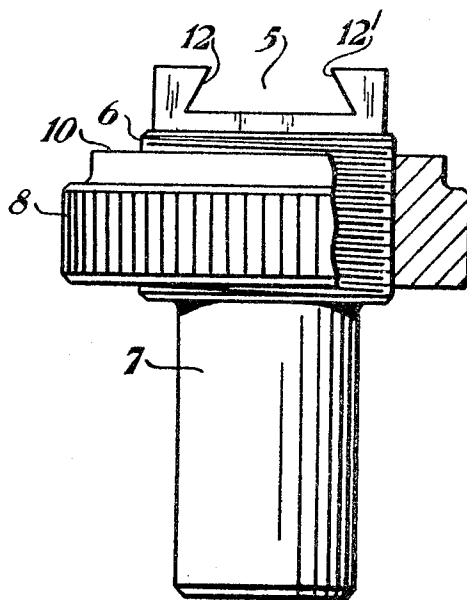


Fig. 3.



1

3,268,197

CLAMPING DEVICE FOR MEASURING INSTRUMENTS

Carl Mahr, Plochingen Str. 23, Esslingen (Neckar), Germany

Filed Apr. 15, 1964, Ser. No. 360,024

Claims priority, application Germany, Sept. 27, 1963,

M 58,351

4 Claims. (Cl. 248—316)

This invention relates to a clamp device for measuring instruments of the detector lever type by means of which the instrument can be rapidly and dependably clamped, without a special tool and special aids and in accordance with the conditions of use of the instrument, by its casing sides on which are provided dovetail-shaped bars.

Clamping devices for detector lever measuring instruments provided with dovetail bars, consisting of a clamping stem and a clamp member having a dovetail-shaped groove, are known in themselves.

In one known form of construction, the clamping device comprises a clamp member having a dovetail groove for sliding engagement with dovetail bars on the casing of the instrument and having a bore, extending from the dovetail groove to the opposite side of the clamp member, with an internal thread for screwing-in the actual clamping stem.

In order to clamp the clamping device securely on the casing of the instrument in this known construction, the clamping stem is turned after it has been pushed onto the respective dovetail bar. The clamping stem is then pressed against the bar thus applying the dovetail surfaces of the clamp member against the respective surfaces of the bar, whereby a clamping action is obtained. This known arrangement has the disadvantage that, because of the smooth outside diameter of the clamping stem required for it to be accommodated, perfect clamping is not possible by hand and requires the aid of a tool. For this reason a slot for a screw driver is provided at the free end of the clamp stem.

In practice a tool is not always available. It is a further disadvantage that at the end which is screwed into the clamp member, the cross-section of the clamping stem is considerably weakened by the screwthread, which is generally smaller than the diameter of the stem, thus leading to a reduction in the rigidity of the clamping action of the instrument. Another disadvantage is that the bearing surface which presses against the dovetail bar is only of small cross-section, so that perfect clamping is possible only on the application of considerable force.

This results in damage due to indentations being formed on the dovetail bars of the instrument casing, which detract from the appearance of the instrument and which might interfere with accurately re-positioning the instrument. When the detector lever measuring instrument is turned about the axis of its clamping shaft, which is often necessary when adjusting the measuring instrument, the clamp must be released which is yet another disadvantage. Moreover the clamping device is in most cases not accessible for the above-mentioned tool when the instrument is clamped in its mounting. Temporary slackening and re-tightening of the clamping device for the purpose of adjusting the instrument is therefore difficult and often impossible.

Another construction provides a firm connection of the clamp member with a dovetail shaped groove and the actual clamping stem. The clamp member is slotted at right-angles to the path of the groove and a lateral clamp screw passes through it. This screw is tightened in order to effect clamping, whereby the halves of the clamp member, which are partly separated by the slot, are drawn together. This construction also has the disadvantage

2

that a tool, for example a screwdriver, is required.

According to the present invention the clamp device is composed of two parts, namely the actual clamping post or stem and a threaded set collar. The clamping post or stem is provided at one end with a dovetail section end groove in addition to an external screwthread to receive the set collar, which is preferably formed with a knurled surface to facilitate operation.

When the set collar is tightened, its wide bearing shoulder presses against the dovetail shaped bar on the casing of the instrument.

In this construction perfect clamping is possible by hand alone, without the necessity of using a tool. Through the broad bearing surface provided by the shoulder, dependable clamping is ensured without damaging the dovetail bar. The cross-section of the clamping stem is not weakened by the screwthread, because preferably the external screwthread for the set collar is larger in diameter than the clamping stem.

Another advantage lies in the ease of manufacture of the two parts, which are relatively simple in shape, which compose the clamping device for detector lever measuring instruments according to the present invention.

The invention is illustrated in the accompanying drawings in which:

FIGURES 1 and 2 are respectively a side and end elevation of a detector lever measuring instrument with the clamping device in position, and

FIGURE 3 is an elevation of the clamping device on an enlarged scale.

The detector lever measuring instrument comprises a body part or casing 1 mounting a sensing lever 2 and an indicator dial 3, the body 1 being provided with dovetail-section slide bars 4 and 4', by means of which the instrument can be mounted in any desired manner in accordance with the conditions of use of the instrument.

The clamping device of this invention comprises a post or stem 7 having at one end a correspondingly dovetail-section groove 5 for engagement with either of the bars 4 or 4'.

The post 7 is externally screwthreaded, the threaded portion, which is directly below the groove 5, being indicated at 6.

A set collar 8, which has an internal screwthread and is screwed on to the threaded portion 6 of the stem, is provided with a shoulder 10 having a large bearing surface. On engagement of the dovetail groove 5 with the required slide bar 4 or 4', the set collar 8 is tightened until its shoulder 10 bears against the end face 11 or 11' of the dovetail bar, whereby the dovetail surfaces 12 and 12' are drawn into tight friction contact with the respective surfaces of the dovetail bar. It will be found that even with moderate tightening by hand alone, clamping in any desired position is possible.

It is to be understood, of course, that various modifications within the scope of the invention will be apparent to persons skilled in the art, and that the specific embodiment described is merely one illustration of the invention as defined in the appended claims.

I claim:

1. A clamping device for a measuring instrument of the detecting lever type, said instrument having a dovetail-section slide bar with the sloped surfaces forming said dovetail-section parallel to the longitudinal axis of said bar, which comprises a post having a dovetail groove at one end to accommodate said slide bar and external threads adjacent said end, the sloped faces forming said dovetail groove being parallel to the longitudinal axis thereof and rigidly secured to said post and a set collar having a bearing surface facing said groove end screwed onto said threads so that said bearing surface

3

engages firmly a slide bar accommodated in said groove at substantially any lateral position with respect thereto to interlock said bar and said groove.

2. A clamping device according to claim 1 wherein said set collar has an outer diameter substantially greater than the diameter of said post provided with a gripping surface.

3. In combination, a measuring instrument of the detector lever type having at least one exteriorly mounted dovetail-section slide bar with the sloped surfaces forming said dovetail-section parallel to the longitudinal axis of said bar, a post having a dovetail groove at one end and external threads adjacent said grooved end, the sloped faces forming said dovetail groove being parallel to the longitudinal axis thereof and rigidly secured to said post, and a set collar having internal threads corresponding to said post threads, said slide bar being fitted in said groove, and said collar being screwed onto said post and engaging said slide bar to apply locking pressure between

4

said bar and said groove at substantially any lateral position with respect thereto.

4. A combination according to claim 3 wherein said collar has an annular bearing surface in a plane normal to the axis of said internal threads to engage said slide bar.

References Cited by the Examiner

UNITED STATES PATENTS

10	1,061,325	5/1913	Reinartz	-----	248—316
	2,625,746	1/1953	Ruohart	-----	33—172
	2,823,003	2/1958	Puggard	-----	248—186
	2,840,334	6/1958	Cauthen	-----	248—187
	3,006,052	10/1961	Stickney et al.	-----	248—177 X
15	3,054,589	9/1962	Godsey	-----	248—185

CLAUDE A. LE ROY, *Primary Examiner.*

R. P. SEITTER, *Assistant Examiner.*