L. LOWENSTEIN.

ADJUSTABLE THICKNESS GAUGE.

APPLICATION FILED SEPT. 14, 1918.

1,433,559. Patented Oct. 31, 1922.

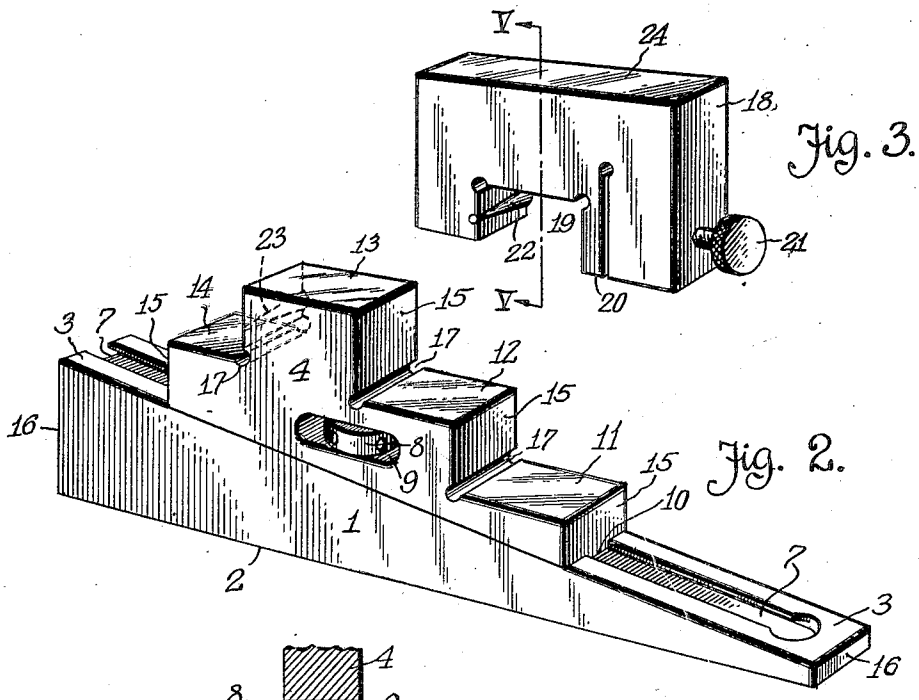


Fig. 3.

Fig. 2.

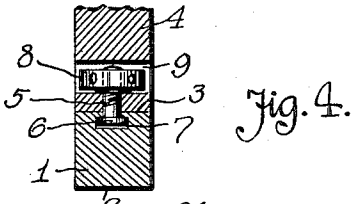


Fig. 4.

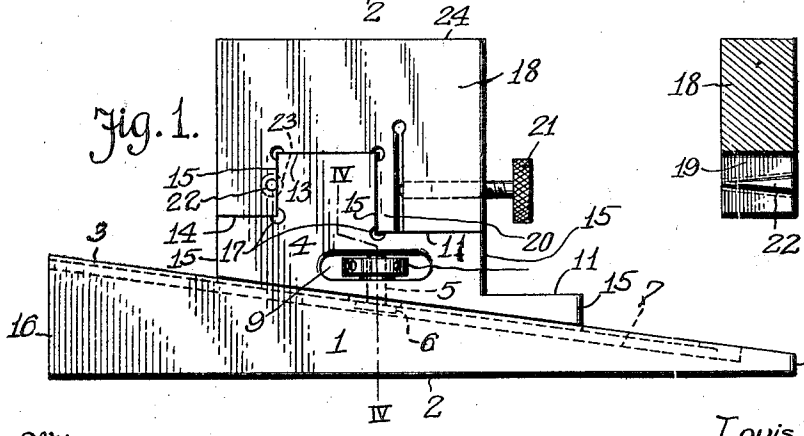


Fig. 1.

Fig. 5.

Witness

Chas. W. Stauffiger

Anna M. Dorr.

Inventor

Louis Lowenstein.

By Richard Eyth

Attorneys

Patented Oct. 31, 1922. 1,433,559

UNITED STATES PATENT OFFICE.

LOUIS LOWENSTEIN, OF DETROIT, MICHIGAN, ASSIGNOR TO THE H. R. LEWIS TOOL CO., OF DETROIT, MICHIGAN.

ADJUSTABLE THICKNESS GAUGE.

Application filed September 14, 1918. Serial No. 254,063.

To all whom it may concern:

Be it known that I, LOUIS LOWENSTEIN, a citizen of the United States of America, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Adjustable Thickness Gauges, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to an improved adjustable block for testing or determining distance between opposed surfaces or points, for use in machine shop work, and its object is to provide a tool or gauge for the purpose having a stepped surface for increasing the range of adjustment, and further, to provide a detachable member or supplemental block for further increasing the range of expansion of the device, said supplemental member being formed to accurately seat upon the stepped surface and be adjustable with the member having such surface.

With these and other ends in view, the invention consists in the matters hereinafter set forth, reference being had to the accompanying drawing in which—

Figure 1 is a side elevation of a device illustrative of the invention;

Fig. 2, a perspective view of the same with the supplemental block removed;

Fig. 3, a like view of the supplemental block;

Fig. 4 is a transverse sectional detail view taken on the line IV—IV of Fig. 1; and

Fig. 5 is a similar sectional detail view of the supplemental block, taken on the line V—V of Fig. 3.

A base member 1 of suitable length and width has a plane bottom surface 2 and an upper surface 3 formed at a desired angle thereto in the direction of the length of said member to provide a plane surface inclined in the direction of the length of the member to the lower or bottom surface 2 and upon which upper surface is adapted to slide, an adjustable member 4 detachably and adjustably secured thereon by a bolt 5 having a head 6 engaged in a longitudinal undercut slot 7 in the face 3. The bolt is screw-threaded at its upper end and provided with a nut 8 lying with a recess or opening 9 in the member 4, said member being accurately guided in its sliding adjustment upon the surface 3 by a rib 10 on the mating surface of the member 4 fitting into the slot or groove 7. By turning the nut 8, the head 6 of the bolt is drawn into engagement with the flanged or undercut sides of the slot and said member 4 may be thus locked in any position to which it is adjusted along the lower or base member 1.

The upper side or surface of the member 4 is stopped or formed with a plurality of surfaces 11, 12, 13 and 14 parallel with the bottom surface 2 of the base 1, said surfaces or steps having end faces or risers 15 at right angles thereto forming planes which are vertical to the base or bottom surface 2 and parallel to the end faces 16 of the base member 1, the angles formed by the meeting of the several horizontal or step faces with the vertical faces 15 being relieved or cut away, as at 17, to facilitate the forming of these several faces. Measurements may be taken in a direction longitudinally of the block, by adjusting the member 4 upon the member 1 and determining the distance from any one of the surfaces 15 to an end face 16. Measurements in a direction transversely of the block may be accurately determined by adjusting the member 4 upon the member 1 and determining the distance between any one of the step surfaces and the bottom surface 2, said step surfaces 11, 12, 13 and 14 being arranged in different planes to give a wide range of measurement, any measurement between one step and the next, being provided for by the adjustment of the upper member 4 along the inclined surface 3 of the base member.

The face 14 is stepped down from the face 13 thus forming an upwardly projecting rectangular portion the upper end surface of which is the face 13, and to increase the height of this portion so that the device will have a further range of adjustment to spare a greater space between two members or points for the purpose of obtaining an accurate measurement of such distance, an extension block or member 18 is provided. This extension member is formed with a notch or recess 19 in its lower side to receive the rectangular projection on the member 4, the portions or legs at each side of the recess

being of a width equal to that of the surfaces 12 and 14 and adapted to seat thereon. The member is slitted upwardly from its lower side adjacent to one side of the recess to form a yieldable portion or wall 20 adapted to be forced into frictional contact with the face 15 by a set-screw 21 engaging a screwthreaded opening in the leg of the member abutting the wall, to hold the extension member in place upon the adjustable member 4. To further hold and accurately position said member 18, a tapered pin 22 is secured in an opening at one side of the recess 19, with one side of the pin projecting into the recess and a tapered notch 23 is formed in the face 15 of the projecting rectangular portion of the member 4, to receive this projecting side of the pin. The extension member or block 18 is thus accurately seated and detachably held in place upon the member 4 so that accurate measurements may be made between two surfaces or points by adjusting the member 4 upon the base 1 until the top plane surface 24 of the block contacts one surface or point and the bottom surface 2 of the member 1 engages the other point or surface, and then determining the distance between said surfaces.

By the above arrangement I am able to not only provide the horizontal surfaces of member 4 without any depressed portions such as would permit the accumulation of dirt, etc., and affect the conditions of measurement, but in addition, the adjusting device is so positioned that it is always convenient to the user as member 4 is shifted in the direction of its travel, thus permitting accuracy in providing adjustment without any necessity of employing any additional adjusting means than that shown, the adjusting means, in my present invention being carried by member 4.

Obviously, changes may be made in the construction and arrangement of parts within the scope of the appended claims without departing from the spirit of the invention, and I do not limit myself to the construction shown.

Having thus described my invention what I claim is:

1. A gauge comprising a base member having a plane side and an opposite side formed at an inclination to the plane side, an adjustable member slidable upon the inclined side and formed with a stepped side forming parallel plane surfaces parallel with the plane side of the base member, and means carried by and movable with the adjustable member for maintaining it in position at any point within the range of adjustment, said means being located wholly below the stepped side of the member, said adjustable member being freely movable in the direction of length of the inclined side of the base member during periods when said adjusting means is rendered inactive.

2. A gauge comprising a base member, an adjustable member on the base member and having a stepped upper side, and a supplemental member detachably attached to the stepped side of the adjustable member, said adjustable and supplemental members having complemental configurations such as to limit their assembly to relative movements in directions corresponding to the planes of the step faces.

3. A gauge comprising a base member, an adjustable member slidable upon the base member and having a stepped side forming a rectangular projection, and a supplemental member fitting over and detachably secured to the projection, said adjustable and supplemental members having complemental means operative to limit the assembly movements thereof to relative movements in directions corresponding to the planes of the step faces.

4. A gauge comprising a base member having a plane lower face and an upper face inclined to the lower face longitudinally of the member, an adjustable member slidable upon the inclined face of the base member and having an upper side formed with a series of faces lying in planes parallel to each other and to the lower face of the base member, and means carried by and moving with the adjustable member for securing said member in adjusted position upon the base member, said means being positioned independently of such stepped side, the adjustable member being freely shiftable in the direction of length of the inclined faces during periods when the securing means is inactive.

5. A gauge comprising a base member, an adjustable member slidable upon the base member and having a rectangular projection, a supplemental member having a recess into which the projection is adapted to fit, and means for detachably securing said supplemental member in place upon said projection.

6. A gauge comprising a base member, an adjustable member slidable upon the base member and having a rectangular projection, a supplemental member having a recess into which the projection is adapted to fit, and slitted transversely adjacent said recess to form a yieldable portion adapted to engage one side of said projection, and means for forcing said yieldable portion into contact with the side of said projection.

7. A gauge comprising a base member formed with an upper face inclined to its lower face longitudinally of said member, an adjustable member slidable upon the inclined face of said base member and formed with a plurality of upper faces arranged in different horizontal planes parallel to the lower face of the base member and forming

an upward rectangular projection, a supplemental member having a rectangular recess in its lower side to receive said projection and formed with a transverse slit adjacent one side of said recess forming a yieldable portion, a screw to engage the yieldable portion and force the same into contact with the side of said projection, and a tapered guide member for guiding said supplemental member to its seat upon said projection.

In testimony whereof I affix my signature in the presence of two witnesses.

LOUIS LOWENSTEIN.

Witnesses:

LEWIS E. FLANDERS,

ANNA M. DORR.