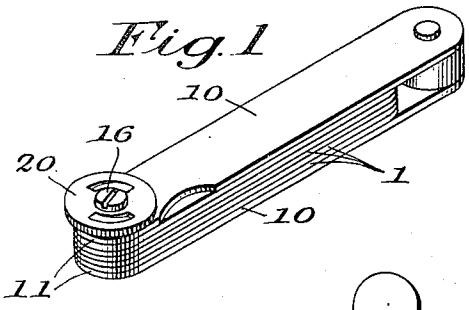
Oct. 8, 1940. C. G. BIGWOOD 2,217,648

ADJUSTABLE LOCKING MULTILEAF GAUGE

Filed March 15, 1940

Fig. 1



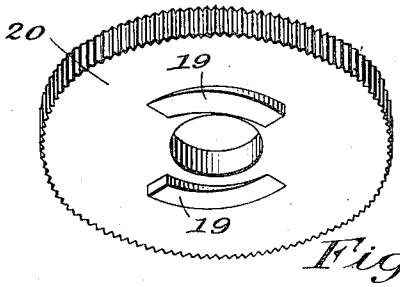


Fig. 3

Fig. 2

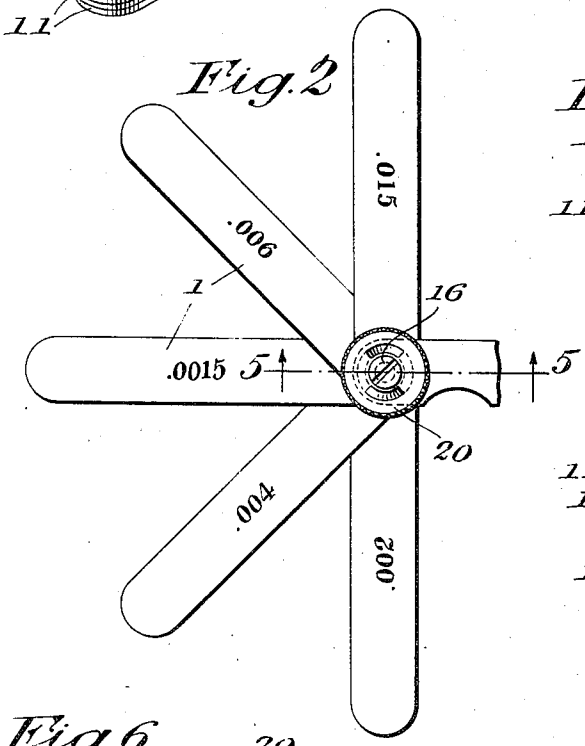


Fig. 4

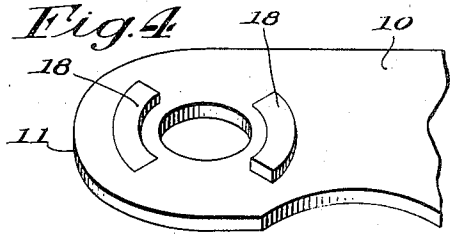


Fig. 5

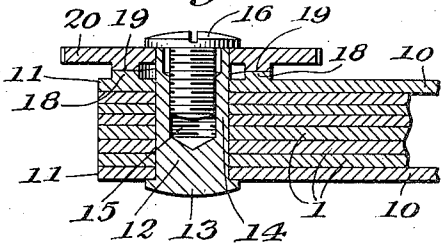
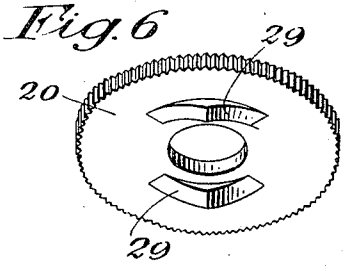


Fig. 6



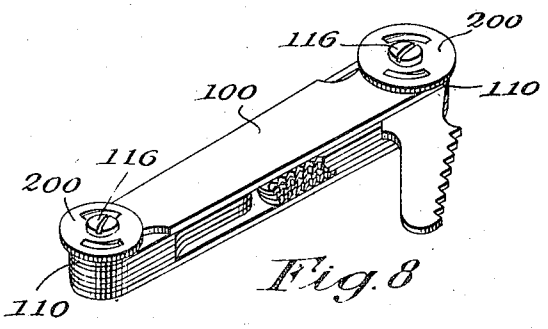


Fig. 8

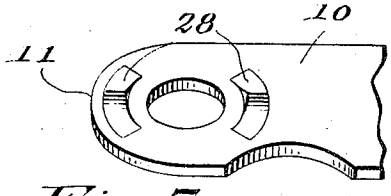


Fig. 7

Inventor
Clifton G. Bigwood
By Spear Rawlings & Spear
Attorneys.

Patented Oct. 8, 1940

2,217,648

UNITED STATES PATENT OFFICE

2,217,648

ADJUSTABLE LOCKING MULTILEAF GAUGE

Clifton G. Bigwood, Athol, Mass., assignor to The L. S. Starrett Company, Athol, Mass., a corporation of Massachusetts

Application March 15, 1940, Serial No. 324,131

2 Claims. (Cl. 306—16)

In the production of multiple bladed gauges such as those of thickness, fillet angle, screw pitch or like character, it has been common for manufacturers to supply the blade members in various assemblies. These were usually of pivotal character.

As industry has speeded up, the matter of convenient and efficient manipulation has become increasingly important. One of the desired improvements has been for a simple, quick-acting blade lock by which the workman could hold any blade in any desired posture relative to the case which with the rest of the assembly could be used as a handle. Most locks heretofore proposed have been inconvenient to actuate and sluggish on either locking or releasing movements or on both of such manipulations and have not been versatile in manufacture.

My present invention is one of general applicability in combinations of this sort and is producible at low factory cost so as to be generally available to the workman's tool resources. As illustrative of such adaptation I have shown in the accompanying drawing simple illustrative embodiments. Throughout the specification and drawing like reference characters are employed to indicate corresponding parts, and in the drawing:

Fig. 1 shows a feeler gauge according to my invention.

Fig. 2 is a characteristic spread of feeler blades with handle broken away for shortening the view.

Fig. 3 is a view of locking device tilted to expose its cams.

Fig. 4 is a view of one end of the side of a case with parts removed to expose the same.

Fig. 5 shows a section through a pivot assembly.

Fig. 6 shows a locking device with modified form of segmental cam having its ridge in the middle so as to be actuatable in either direction of rotation.

Fig. 7 shows the corresponding cam treatment of the end of the side of a case, and

Fig. 8 suggests the invention as applied to a double ended screw pitch gauge unlocked to allow the partial opening up of a blade.

In the embodiment suggested in Fig. 1 I have shown my improvement as applied to a standard type of so-called feeler gauge. In this the blades 1 are of the tapered thickness type of ground members of graded range. As indicated, for example, they might be six in number and run .0015, .002, .003, .004, .006 and .015 in thickness, as indicated on the members usually as 15, 1½, 2, 3, 4 and 6.

The members 1, which may be of any desired number, are preferably pivoted in the side walls 10. These are of thin slightly resilient stock, such as sheet metal having a slight resilience or compressibility sufficient to afford a yield in the assembly when under locking pressure. The enclosing side walls 10 are usually of oblong shape having rounded ends 11. The members 1 are shaped to be approximately contained by the walls 10 as a case.

The ends 11 have aligned apertures or openings which act as receivers for the end studs. Such studs preferably consist of a tubular rivet-like member 12 having a head 13 and a hollow shank 14 centrally tapped as at 15 below the unthreaded mouth of its open end. This shank may be of plain cylindrical external contour providing bearings for the blade members 10 which have circular apertures 10′ of concentric arrangement with the stud axis and preferably with the radius of the rounded member ends.

The plural blade assembly is held between the ends 11 of the enclosing case, as indicated in the section of Fig. 5. In this the stud is shown as positioned in clamping axial relation to the assembled blade members and their enclosing case sides. The unheaded end of the stud shank 14 projects slightly beyond the outer surface of one of the wall ends 11 and on it is mounted an annular locking disc 20 held in place by a screw 16 whose shank is engaged in the central tapped portion of the stud so that its head contacts with the outer face of the annular locking disc 20 to hold it to the stud end. The inner face of the locking disc 20 is formed with a cam 19 which preferably is made as a pair of concentric arcs. These coact with corresponding cam surfaces 18 on the outer face of the end 11 which underlies it.

The cams may face the same way in either direction so that they engage their high parts to lock in one direction of rotation of the disc 20 and disengage these parts by rotation in the other direction to unlock the assembly.

In Figs. 6 and 7 I have indicated a modified form of the engaging cam surfaces as 28 and 29. These surfaces have a central high (or low) area so that locking engagement is made by rotation in either direction and the user does not have to remember, or experiment to find out, which way he turned the locking disc 20 to tighten its grip on the blade assembly in the case end. This is found convenient to use on the double ended assemblies where the user is apt to turn over the case or reverse its position in

his hand and thereby unconsciously hamper his own technique.

As in usual devices of this type, any desired number of blade members may be assembled up to the convenient capacity of the case. Also, blades may be pivoted and locked at only one end of the device, as in the form shown in Fig. 1, or they may be pivoted at both ends as in Fig. 8.

In the form shown in Fig. 8, a double ended case 100 has its opposite ends 110 both curved or rounded off to receive an axial stud member on which are locking discs 200 which are held in place by the head of a screw 116. These locking discs 200 may be on the same side of the assembly or reversed at opposite ends. Also, their direction of rotation may be the same or reversed in their action or assembly.

A great variety of types and combinations in the blade or like assemblies can easily be produced in accordance with the desires of the trade or the production range of the manufacturer.

What I therefore claim and desire to secure by Letters Patent is:

1. In a locking stud for a multiblade gauge, a case side having a cylindrical aperture adjacent one end and having concentric raised cam surfaces disposed about said aperture, a headed tubular shank stud having a smooth exterior wall and a tapped axial aperture, a screw threaded to engage said tapped aperture and having a flanged head disposed opposite to said tubular stud end, an annular locking disc having concentric raised cam surfaces rotatably engageable with those of said case side and rotatably mounted on said stud for partial rotative movement when under locking or unlocking actuation.

2. A locking stud structure according to claim 1 in which the cam surfaces are double ended and have their inclinations oppositely disposed whereby actuation may be effected by rotation of the locking disc in either direction.

CLIFTON G. BIGWOOD.