G. C. BLAIR.

GAGE.

APPLICATION FILED OCT. 11, 1917.

1,280,138. Patented Oct. 1, 1918.

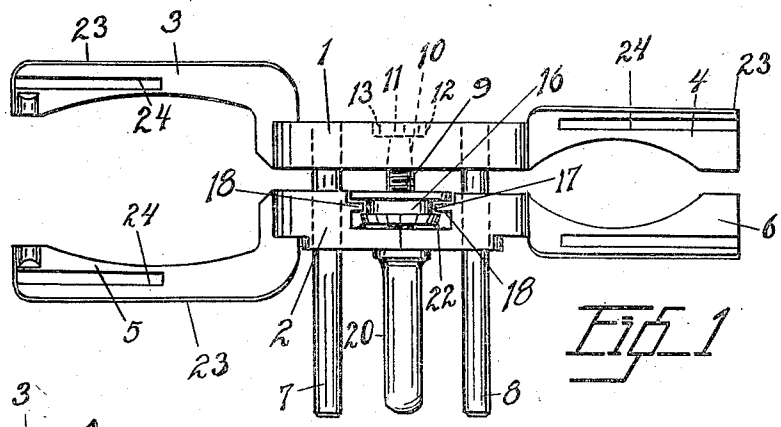

Fig. 1

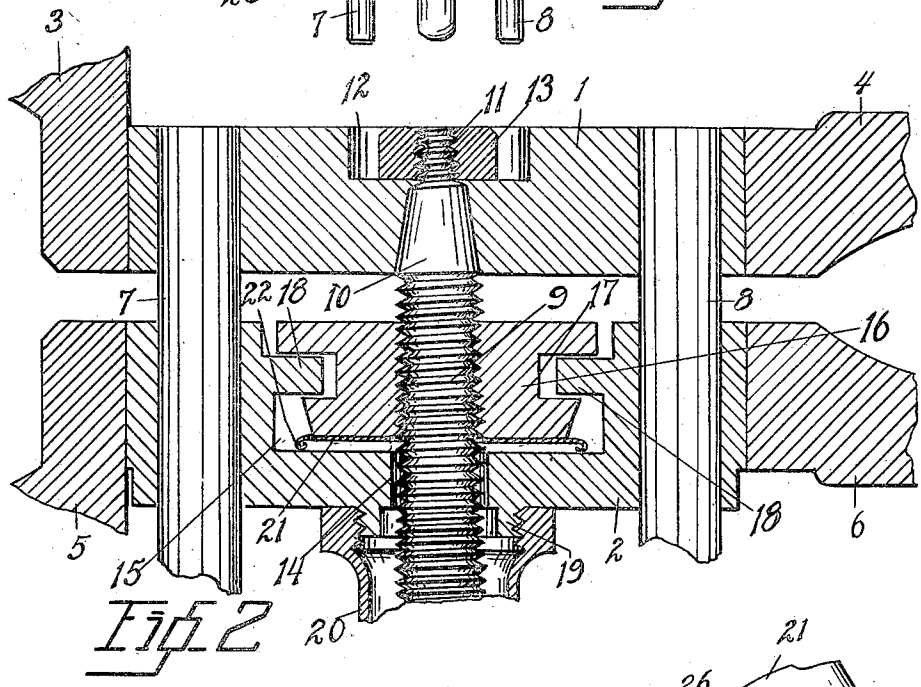

Fig. 2

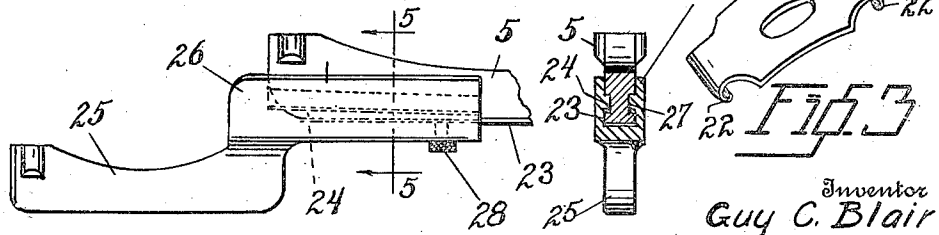

Fig. 4

Fig. 5

Fig. 3

Inventor
Guy C. Blair

By Herbert E. Smith
Attorney

UNITED STATES PATENT OFFICE.

GUY C. BLAIR, OF HILLYARD, WASHINGTON.

GAGE.

1,280,138. Specification of Letters Patent. Patented Oct. 1, 1918.

Application filed October 11, 1917. Serial No. 196,046.

To all whom it may concern:

Be it known that I, GUY C. BLAIR, a citizen of the United States, residing at Hillyard, county of Spokane, State of Washington, have invented certain new and useful Improvements in Gages, of which the following is a specification.

The present invention relates to improvements in gages, of the opposed contact type, with screw adjustment, and designed for both outside and inside measurements.

The primary object of the invention is the provision of an implement of the caliper-type which is readily adjustable, compact in its arrangement and construction, durable, and simple in operation, and involving means for taking up wear on the threads of the adjusting screw bar, equipped with means for eliminating lost motion, especially between the adjusting nut and the movable head, and furnished with a cap for protecting the screw bar from dust, dirt, etc., all as will be pointed out in the following specification and claims.

In the accompanying drawings one complete example of the physical embodiment of the invention is illustrated which is constructed and arranged according to the best mode so far devised for the practical application of the principles of the invention.

Figure 1 is a plan view of a gage constructed according to the present invention.

Fig. 2 is an enlarged, sectional view of the fixed and movable heads, showing the operating parts of the gage.

Fig. 3 is a perspective view of a resilient plate located between the adjusting nut and movable head for preventing lost motion.

Fig. 4 is an enlarged, detail view showing the attachment of an auxiliary arm on the caliper arm, which may be used when required.

Fig. 5 is a sectional view at line 5—5 of Fig. 4.

In the preferred embodiment of the invention as illustrated in the drawings there are two heads, the stationary head or stock 1 and the movable head 2, each of which is fashioned with a pair of integral caliper arms as 3, 4, 5, and 6, arranged in opposed pairs at the sides of the heads as shown, and adapted for inside and outside measurements. As depicted in the drawings the pairs of arms 3—5 and 4—6 are adapted, respectively, for outside measurements from one inch as a minimum, up, and for inside measurements from two inches up and one inch, up.

The stationary head 1 is provided with a pair of fixed guide rods or pins 7 and 8, spaced diametrically with relation to the center, threaded, adjusting bar 9, which is fixed in the stationary head by means of the tapered head 10 and reduced threaded end 11 of the bar. At 12 the stationary head is counter bored or recessed, to accommodate the nut 13 on the reduced threaded end of the adjusting bar, and by means of the reduced threaded end and tapered head, the screw adjusting bar may be tightened in the head by means of the nut.

The movable head is perforated at 14 to accommodate the adjusting bar, and is formed with a recess 15 in its central portion to accommodate the adjusting nut 16 which is threaded on the bar. The adjusting nut is preferably milled or knurled on its periphery, and, as shown in the drawings, is circular, with an annular groove 17 therein, whose walls incase the two guide flanges 18, 18, formed integral with the movable head and projecting into the recess or opening 15 of the head, are frictionally engaged by the adjusting nut when it is turned to move the head on the adjusting bar.

An externally threaded, open boss 19 is shown as integral with the movable head and is designed to receive the threaded cap 20, utilized to cover the threaded bar 9 and protect it from dust and dirt.

Between the adjusting nut and the movable head, a resilient, open center, plate or washer 21, is interposed and located on the threaded bar. In addition to the inherent elasticity of the metallic washer, its resilience is increased by turning the ends with flanges 22, 22, so that the resilient washer or plate will completely fill the space between the nut and head, and prevent play between the nut and flanges of the head, thus eliminating lost motion.

The caliper arms are preferably formed with flanges 23 and grooves 24, at their sides, the grooves being open at the ends, so that auxiliary arms may be added as extensions if it is desired to measure an objective of greater dimensions than the screw bar 9 will accommodate. These extension arms are indicated as 25 in Figs. 4 and 5 of the drawings, and they are formed with grooved, slide members 26 having side ribs 27 in the groove to fit over the flange and groove of

the caliper arms. In Fig. 4 it will be seen that the groove in the slide member is slightly inclined so that the extension may be slid on the caliper arm and secured thereon by means of the set screw 28, and the slight angle or incline of the groove will permit accurate adjustment of the extensions so that they may be checked on a master gage before they are locked in place by the set screw.

The operation of the tool or implement will be obvious, as it will be readily seen that the movable head is actuated by means of the adjusting nut on the adjusting bar, and the head is caused to slide toward or away from the stationary head, and is guided on the pins or rods for that purpose.

What is claimed herein is:—

1. The combination in a gage of a stationary head, a movable head supported from the stationary head, a threaded bar carried by the stationary head and an adjusting nut supported on the movable head engaging said bar, and means on the stationary head for taking up wear between said nut and the threads of the bar.

2. The combination with the caliper arm of a gage as described having a flanged edge and grooved sides with the grooves located at an inclination to the edge, of an extension member formed with a slotted portion having inclined ribs fitted in said grooves, and a set screw adapted to lock the arm and extension together.

3. The combination with a fixed head having guide rods and threaded adjusting bar, of a movable recessed, open center head, a grooved adjusting nut in the recessed head and flanges on the head located in the groove, and a resilient washer surrounding the bar and interposed between the nut and head, for the purpose described.

In testimony whereof I affix my signature.

GUY C. BLAIR.