Aug. 27, 1946. R. C. SQUIRE 2,406,514

ROLL VEE BLOCK SUPPORT

Filed June 5, 1944 2 Sheets-Sheet 1

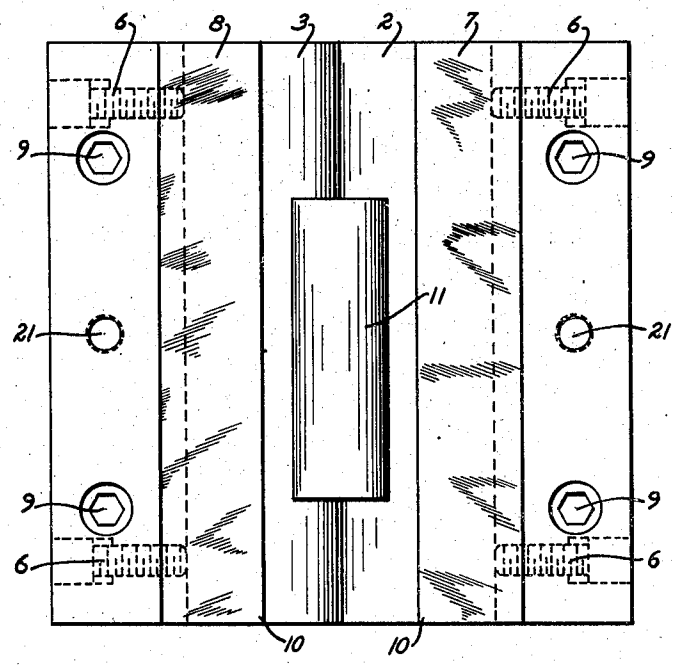
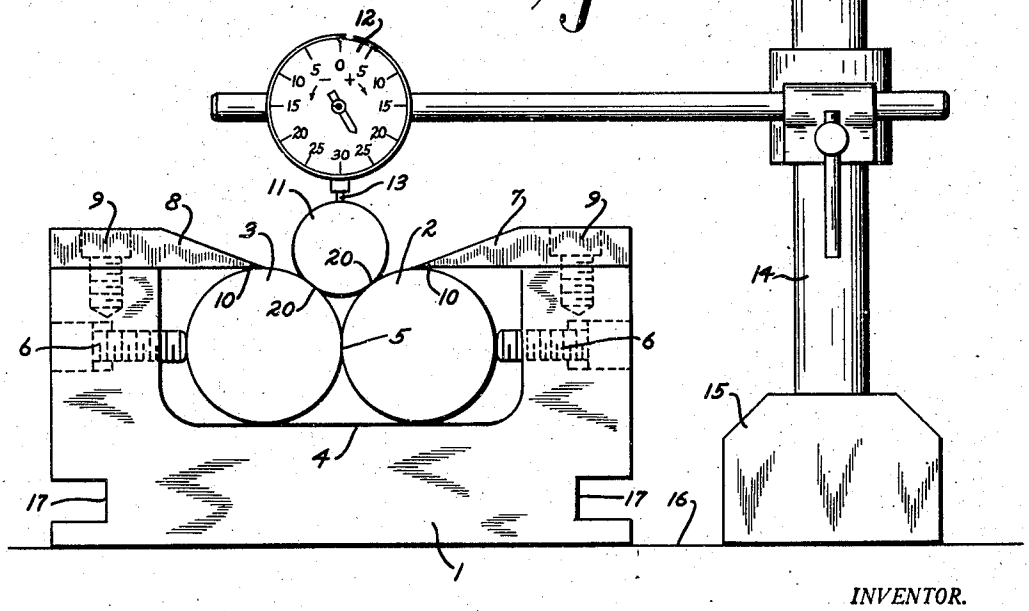


Fig. 1.

Fig. 2



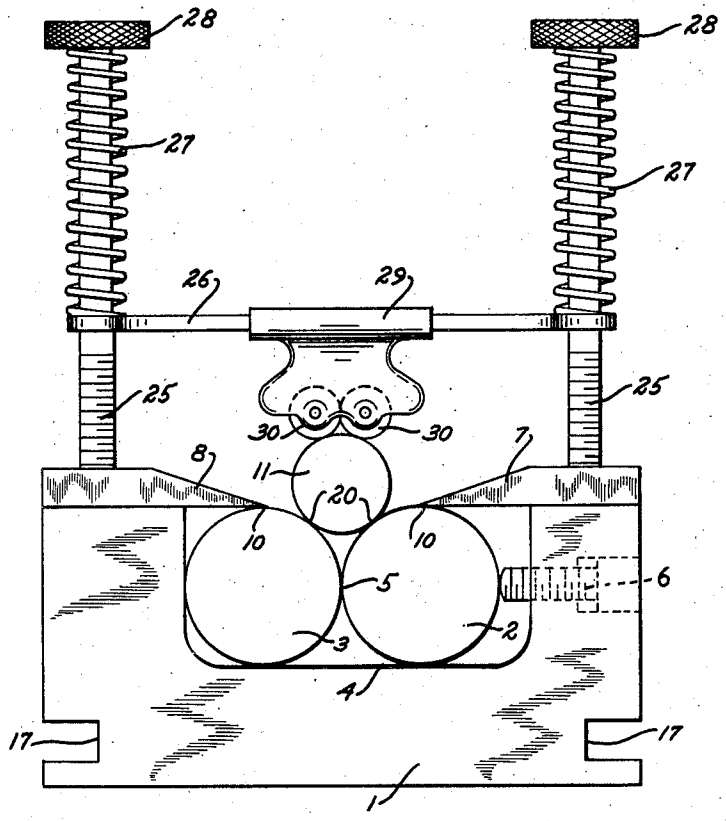
INVENTOR.
ROBERT C. SQUIRE
BY
Ford A. Harmon
ATTORNEY

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Fig. 3.



INVENTOR.
ROBERT C. SQUIRE
BY
Fonk & Harmon
ATTORNEY

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ROLL V BLOCK SUPPORT

Robert C. Squire, Cleveland, Ohio, assignor, by mesne assignments, to Jack & Heintz Precision Industries, Inc., Cleveland, Ohio, a corporation of Delaware

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2 Claims. (Cl. 81—19)

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This invention relates to an improved V block support and has as its general object to provide a support of this general type which will have a longer life before it must be reground and which may be reground with greater facility than conventional V block supports. A particular object is to provide a V block support wherein the supporting trough or V surfaces comprise hardened steel rolls which may be rotated from time to time to distribute the wear without requiring a regrinding operation until they have been worn on all sides thereof.

With these and other objects in view, the invention resides in the particular arrangement and combination of parts to be described in connection with the accompanying drawings in which:

Figure 1 is a plan view of a roll V block support embodying the principles of the invention;

Figure 2 is an end elevation view of the device shown in Figure 1, showing a sensitive gauge applied to the work; and

Figure 3 is an end elevation view of a modified form of the invention.

The device of Figures 1 and 2 comprises essentially a trough-shaped base or housing 1 which contains a pair of hardened steel, cylindrical rolls 2 and 3. The rolls 2 and 3 rest upon a plane horizontal surface 4 within the trough and are forced into an abutting relation along a line contact at 5 by means of a plurality of oppositely directed screws 6. The rolls 2 and 3 are further constrained rigidly in the position shown in Figure 2 by means of top plates 7 and 8 secured to the top surfaces of the housing 1 by means of screws 9. The relationship of the parts is such that the toe portions 10 of the plates 7 and 8 bear firmly on the rolls 2 and 3 to prevent any looseness in the assemblage. If desired, shims may be provided between the plates 7 and the sides of the housing 1 to which they are attached to maintain the proper force upon the rolls 2 and 3 to compensate for wear when the latter are reground.

The rolls 2 and 3 thereby comprise a V block support adapted to support a cylindrical work piece 11 for gauging or other purposes. The numeral 12 indicates a gauge having a sensitive gauging finger 13 adapted to bear lightly upon the work. The gauge may be supported in the conventional manner by a standard 14 on a base 15 adapted for positioning alongside the housing 1 on a common supporting surface 16. The trough 1 is provided with lateral grooves or recesses 17 for firmly clamping the same upon the surface 16 and the lower surface of the trough

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may be diagonally serrated to obtain a flat seating upon the supporting surface 16 in the presence of chips and other foreign material.

Thus, it will be seen that if a large number of identical work pieces 11 are gauged, wear will occur on the rolls 2 and 3 along line contacts at 20, 20 between the work and the rolls in the same manner and to the same extent as the wear occurring in conventional one-piece V block supports, and when it accrues to a measurable amount, the support must be reground. In the present construction, when such measurable wear occurs on the rolls 2 and 3, it is only necessary to slightly loosen the screws 6, and the top plates 7 and 8, so that the rolls 2 and 3 may be slightly rotated to bring true surfaces into contact with the work piece 11. The rolls may thus be rotated a great number of times to distribute the wear therearound, before regrinding is necessary, thus providing an initial life before regrinding many times the initial life of a conventional one-piece V block support.

Another advantage is that the rolls 2 and 3 may be readily ground in centerless grinders to a true cylindrical shape much more easily than the plane V surfaces of a conventional V block support may be ground to true planes, the regrinding of the latter being a relatively intricate operation in order to obtain the desired degree of precision. In this manner, the rolls 2 and 3 may be reground again and again without widening the V.

A still further advantage of the present construction is the universal utility of the device for supporting cylindrical work pieces 11 of widely varying diameters. Inasmuch as there is no gap between the rolls 2 and 3, very small, as well as very large, work pieces may be supported with equal facility and precision. The support is particularly adapted for testing cylindrical work pieces for eccentricity and taper, and for other purposes, as shown in Figure 2. The dial of the gauge 12 may contain markings to indicate plus and minus tolerances in thousandths of an inch, or other units, in accordance with the indication produced by the work engaging finger.

Numeral 21 indicates vertical holes through the sidewalls of the trough 1, adapted to carry upstanding posts for a bridging member having resilient bearing on top of the work piece 11.

In the modification shown in Figure 3, wherein the same reference numerals are used to designate corresponding parts, upstanding posts 25 are supported in tapped holes positioned in the same relation as the holes 21, 21 in Figure 1. These

posts carry a bridging member 26 urged downwardly by springs 27 which are backed up by adjustable thumb screws 28. The bridge 26 carries a slider 29 having work engaging rollers 30 to maintain the work piece 11 in firmer contact with the rolls 2 and 3 than would be accomplished by gravity alone. This additional holding means provides for greater accuracy and uniformity in gauging technique, particularly when the work pieces are small or light, as in the case of aluminum or magnesium alloy parts.

In the embodiment of Figure 3 set screws 6 are provided on only one side of the trough 1, to insure the perfect alignment of the rolls 2 and 3 with the opposite side thereof.

In accordance with the patent statutes, I have shown and described preferred embodiments of the invention for the purpose of illustrating the principles thereof to enable others skilled in the art to make and use the same, but it is to be understood that the invention is capable of many modifications. All such changes in the construction and arrangement are included in the invention, the same being limited only by the scope of the appended claims.

I claim:

1. A precision V block support, comprising a generally trough-like housing member, a pair of hardened smooth cylindrical rolls disposed lengthwise in the trough of said member, a plurality of clamping members carried by the sides of said trough-like member and engaging said rolls to maintain them in contacting side-by-side engagement, and a pair of top plates secured to the sides of said trough and bearing upon the upper surfaces of said rolls to retain said rolls against the bottom of said trough.

2. A precision V block support, comprising a trough-like member having a pair of smooth cylindrical members clamped in side-by-side contacting relation therein to present V supporting surfaces therebetween, a pair of upstanding posts on said trough, a bridging member carried by said posts, a work-engaging member carried by said bridging member, and adjustable resilient means on said posts acting on said bridging member to urge said work-engaging member against a work piece to hold same firmly in contact with said V supporting surfaces.

ROBERT C. SQUIRE.