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GRINDING WHEEL TRUING MECHANISM

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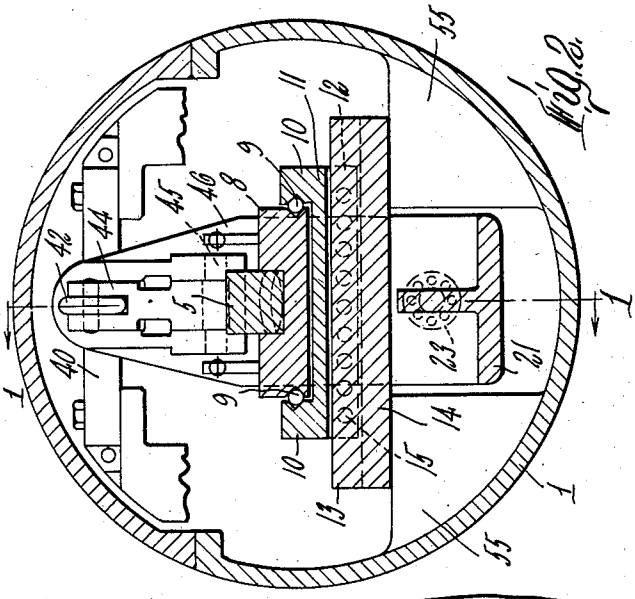


Fig. 2.

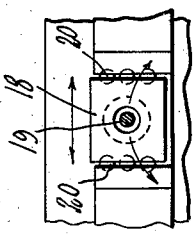


Fig. 4.

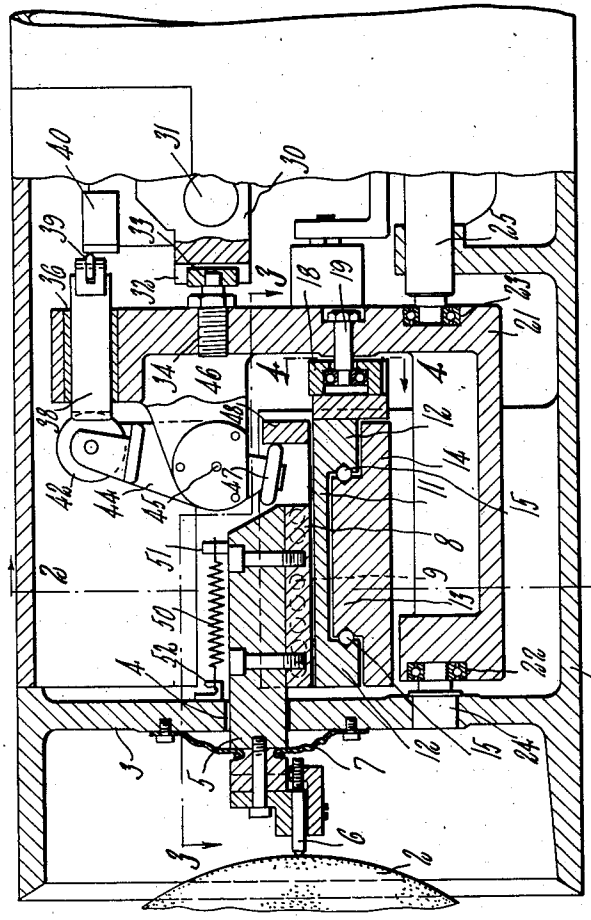


Fig. 1.

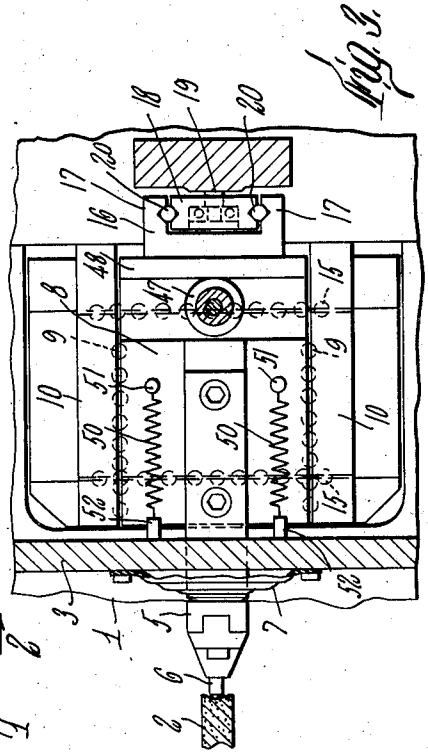


Fig. 3.

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GRINDING WHEEL TRUING MECHANISM

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2 Claims. (Cl. 125—11)

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In the dressing or truing of grinding wheels, it has been common practice to rock the truing tool laterally across the wheel face, the rocking mounting having the advantage that it is relatively easy to eliminate lost motion in the movement of the elements. This mounting, however, produces a traverse in an arc and while this may be quite flat so that in most instances the trued face is sufficiently accurate, in some cases this arc is objectionable, particularly where a special highly accurate configuration of the trued face is important, as it introduces troublesome complications in the production of cam surface contours for controlling the truing device motions.

The present invention, therefore, has for an object to so mount the truing devices that they move in straight lines while at the same time avoiding possibility of lost motion, and yet employ actuating means including pivoted mechanism which can be readily constructed to minimize lost motion effects.

In accordance with this invention, therefore, the truing device is provided with a slide mounted on preloaded ball bearings for motion transverse to the plane of rotation of the grinding wheel and a cross slide also mounted on preloaded ball bearings for motion laterally of the carriage motion, the truing device being carried by the cross slide. The motions of the two slides may then be controlled by pivotally mounted control members.

The advantages of accuracy of control of the pivoted mounting member is thus combined with the straight line characteristics of the slide mountings.

For a more complete understanding of this invention, reference may be had to the accompanying drawing in which

Figure 1 is a fragmentary view partly in side elevation and partly in section on line 1—1 of Figure 2 of a truing mechanism embodying the invention.

Figure 2 is a lateral sectional view on line 2—2 of Figure 1.

Figures 3 and 4 are detail sectional views on lines 3—3 and 4—4, respectively, of Figure 1.

Referring to the drawing, at 1 is indicated a tubular casing for containing the truing mechanism which is shown as of the general type illustrated in the Flanders Patent No. 2,292,874, granted August 11, 1942, for Wheel truing mechanism. The grinding wheel to be trued is indicated at 2. Closely adjacent to the grinding wheel the casing 1 is provided with a transverse partition 3 having a slot 4 therethrough for the slidable reception of a stem 5 to the outer end

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of which, outwardly of the partition 3, the truing tool 6 is fixed. A flexible diaphragm 7 secured about its margin to the partition 3 and toward its center to the stem 5 provides a seal for the slot 4 to prevent the passage of foreign matter back through the slot 4 into contact with the mechanism enclosed by the casing 1. This stem 5 is secured to a slide 8 mounted for movement longitudinally of the stem 5 on preloaded ball bearings 9 positioned between the outer edges of the slide 8 and marginal upstanding walls 10 of a carriage 11. This carriage 11 is also provided with downwardly projecting marginal walls 12 at right angles to the walls 10 which overlie the central elevated portion 13 of a support 14. The support 14 is fixed to the casing 1, being mounted on brackets 55 projecting inwardly therefrom. Preloaded ball bearings 15 are positioned between the walls 12 and the upstanding portion 13, mounting the carriage 11 for motion transverse to the direction of motion of the slide 8 thereon.

The carriage 11 is provided with a rearwardly extended slideway block 16 having upright side walls 17 between which rides a block 18 within which is journaled a pivot 19. Preloaded ball bearings 20 between the blocks 17 and 18 serve to confine the block 18 to a vertical motion with respect to the block 16. The pivot 19 is carried by an arm 21, the lower end of which is extended longitudinally of the casing 1 and at opposite ends is provided with journal bearings 22 and 23 supported on the fixed pivot members 24 and 25, respectively. Rocking of the arm 21 about the axes of these pivot members, therefore, produces lateral sliding of the carriage 11.

This arm 21 is rocked laterally by the lateral movement of a block 30 through which is threaded a screw 31. This screw 31 may be rotated in alternate directions by a driving mechanism such as is shown in the Flanders Patent No. 2,292,874, to which reference has already been made. The block 30 has a pair of spaced vertical guides 32 between which is mounted a crosshead 33 pivoted on a stud 34 secured to the arm 21 above the carriage 11 and the slide 8.

At the upper end of the arm 21 it is provided with a guideway 36 for the slidable reception of a stem 38. The rear end of this stem 38 carries a cam follower roll 39 which engages a face cam 40 fixed to the casing 1 and so configured on its forward face as to cause the stem 38 to be moved axially as it is swung laterally across the face of the cam 40 and is held thereagainst. The forward end of the stem 38 is slotted and receives between the sides of the slot a roll 42 journaled at

the upper end of a lever 44. This lever 44 is fulcrumed at 45 on a bracket 46 carried by the arm 21 and its lower end has journaled thereon a roll 47 which bears against a wall member 48 upstanding from the slide 8. A spring 50 reacting between a pin 51 upstanding from the slide 8 and a hook 52 fixed to the back face of the partition 3 presses the slide 8 forwardly as far as is permitted by engagement of the wall 48 on the roll 47, and as this roll 47 is rocked by the axial motion of the stem 38, the slide 8 is caused to move in and out in accordance with the contour determined by the contour of the cam 40 as the arm 21 is swung about its fulcrum which causes the follower 39 to traverse the cam 40.

Thus the carriage 11 is constrained to move in a rectilinear path laterally of the casing while the slide 8 is constrained to move in a rectilinear path at right angles thereto, producing in and out motion of the stem 5. By the use of the preloaded ball bearings, extremely accurate control of the rectilinear motions without lost motion is produced while these rectilinear motions are produced by pivoted members which can be closely controlled to avoid lost motion. By this construction the desired rectilinear motions of the truing tool are produced free from lost motion but without undue complication.

From the foregoing description of an embodiment of this invention, it should be evident to those skilled in the art that various changes and modifications might be made without departing from the spirit or scope of this invention.

I claim:

1. A wheel truing device comprising a support, a first slide mounted for rectilinear motion on said support, a second slide mounted on said first slide for rectilinear motion transverse to the motion of said first slide, a truing device carried by said second slide, a member pivoted to said support to swing in a plane parallel to the direction of motion of one of said slides and operatively connected to said one slide, an element slidably carried by said member to move transverse to said plane, a stationary cam along which said element moves as said member swings on its pivot, a follower for said cam carried by said element, a lever pivoted to said member on an axis transverse to the pivotal axis of said member, said lever having a portion engaged by said element and a portion in operative engagement with the other of said slides, means holding said other slide against said lever and said lever against said element, and means for rocking said member.

2. A device constructed in accordance with claim 1 and in which said slides are mounted for rectilinear motion on preloaded ball bearings.

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