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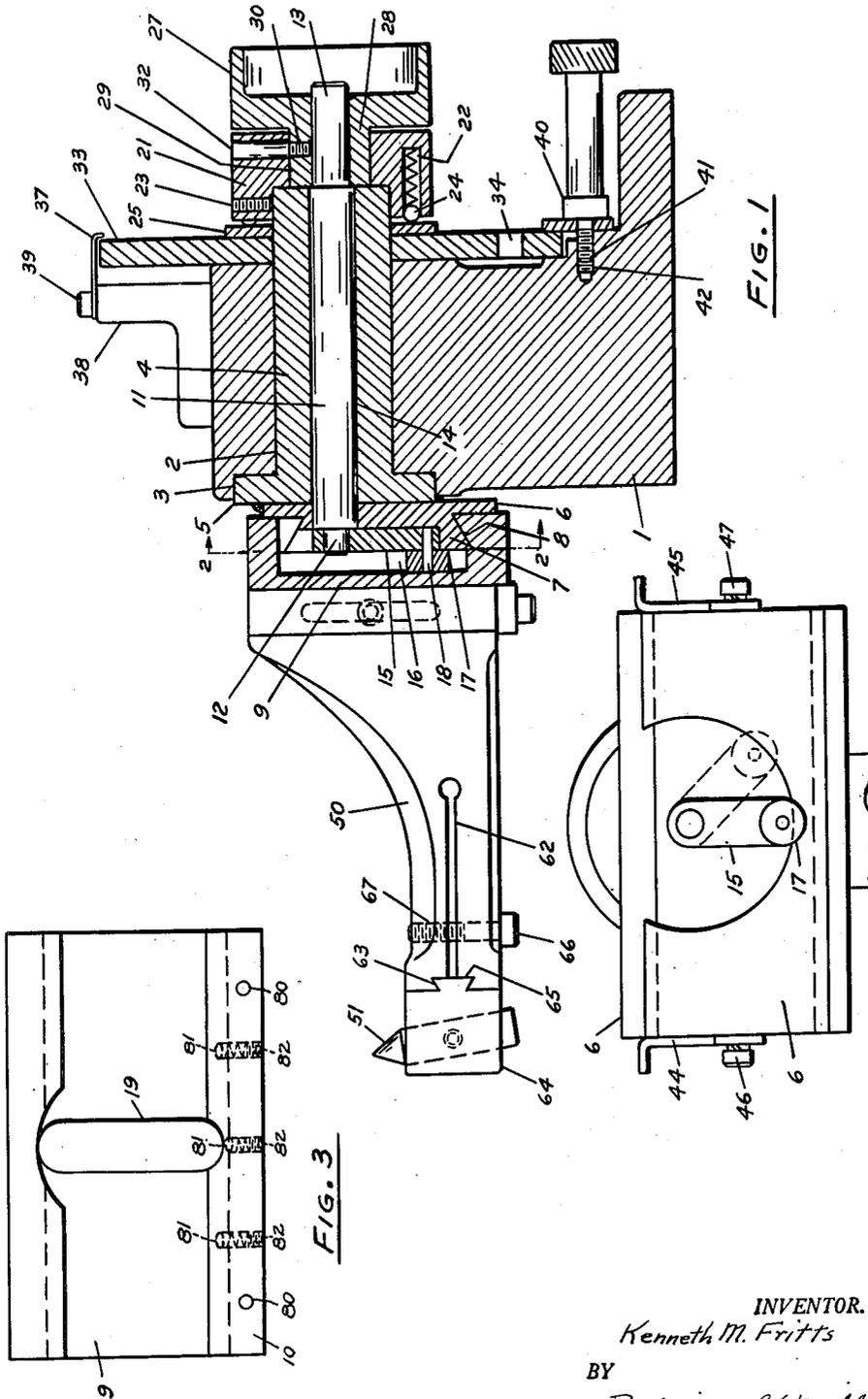
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RADIUS TANGENT DRESSER

Filed Jan. 31, 1947

2 SHEETS—SHEET 1



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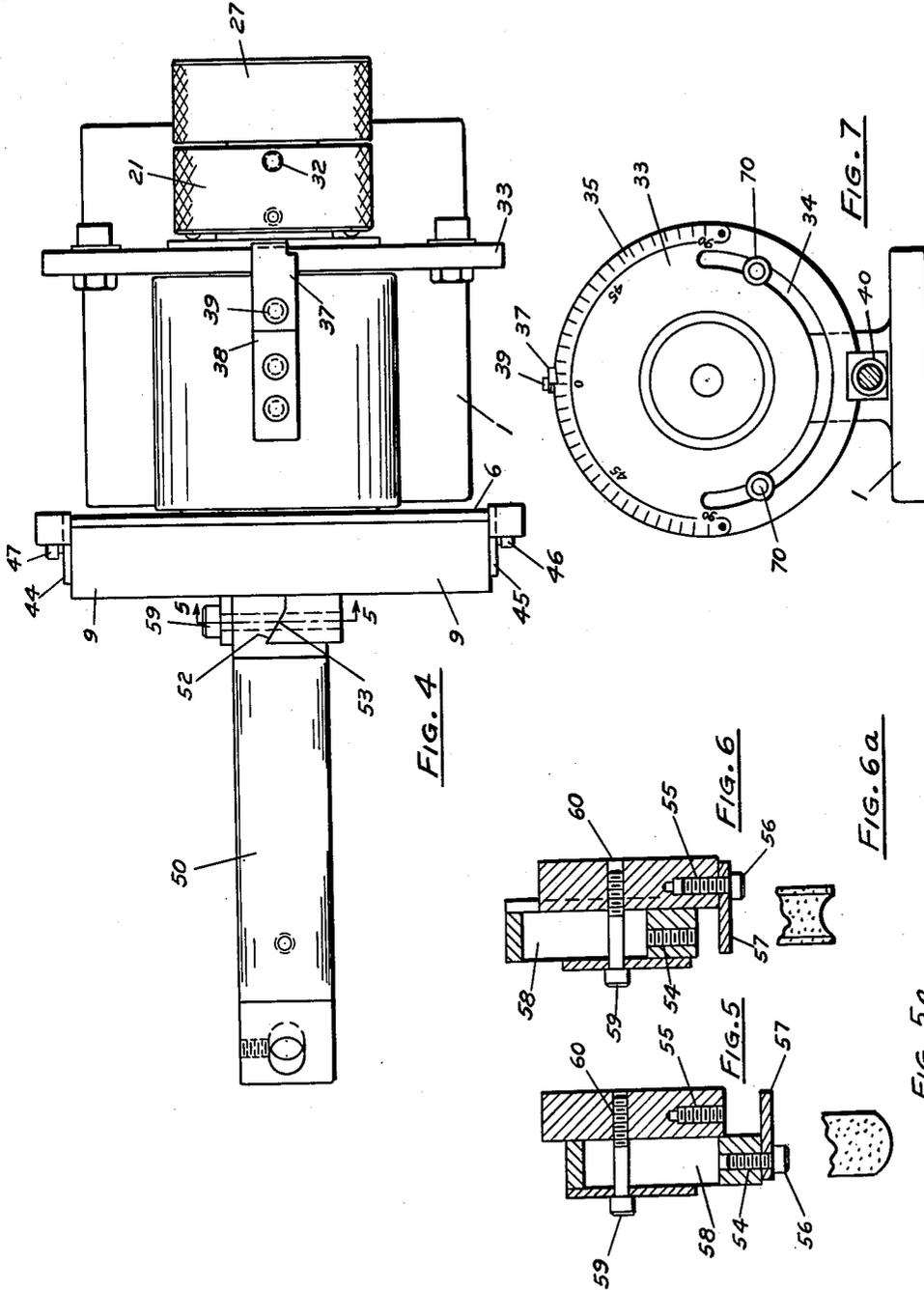
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2 SHEETS—SHEET 2



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RADIUS TANGENT DRESSER

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5 Claims. (Cl. 125—11)

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This invention relates generally to grinding wheel dressers and more particularly to grinding wheel dressers for convex on concave surfaces and for dressing a wheel tangent to the radius thereof.

All devices of this character, made according to the teachings of the prior art, and with which I am familiar, have been very complicated and utilize racks, gears, and swinging tables. In these prior devices emery dust and other deleterious matter gets into the teeth of the gears and racks and between the tables and quickly wears the surfaces down to a point where the machines have considerable play, causing inaccuracy and the operation thereof becomes difficult. These prior devices require considerable time to set up and measuring blocks and other measuring devices must be so positioned that considerable time is taken to obtain a setting within reasonably close tolerances.

It is, accordingly, an object of my invention to provide a radius tangent dresser for grinding wheels which overcomes the above and other defects in present radius tangent dressers and it is more particularly an object of my invention to provide a radius tangent dresser for grinding wheels which is simple in construction, economical in cost, economical in manufacture and efficient in operation.

Another object of my invention is to provide a radius tangent dresser which eliminates all gears and racks.

Another object of my invention is to provide a radius tangent dresser in which the moving parts thereof are sealed.

Another object of my invention is to provide a radius tangent dresser wherein adjustments may be made and measurements may be accurately taken simply and quickly.

Other objects of my invention will become evident from the following detailed description, taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a vertical sectional view of my novel radius tangent dresser;

Fig. 2 is a view taken on the line 2—2 of Fig. 1;

Fig. 3 is an end elevational view of the sliding head of my novel radius tangent dresser;

Fig. 4 is a plan view of my novel radius tangent dresser;

Fig. 5 is a view taken on the line 5—5 of Fig. 4 with the tool holding arm in a position to dress the grinding wheel with a convex surface as shown by the fragmentary view of a grinding wheel in Fig. 5-a;

Fig. 6 is a view taken on the line 5—5 of Fig. 4 with the tool holding arm in a position to dress a grinding wheel with a concave surface as shown by the fragmentary view of the grinding wheel in Fig. 6-a; and

Fig. 7 is an end view in elevation showing the operating handle and the indicating scale on my novel radius tangent dresser.

Referring now to the drawings, Figs. 1, 2, 3, 4,

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and 7 show a support 1 for disposal on the table of a grinding machine, any suitable means being provided to hold the support 1 on a table (not shown). The support 1 has a longitudinally extending bore 2 with a counterbore 3 for receiving a bushing 4 having a flanged portion 5. The bushing 4 is journaled in the bore 2 and is rotatable therein. A supporting plate 6 is secured by any suitable means to the flanged portion 5 of the bushing 4 and has a projecting dovetailed portion 7 for slidably receiving the grooved dovetailed portions 8 of a reciprocating head 9. One side 10 of the dovetailed portions 8 of the head 9 is removably attached by screw bolts 80 and has spring-urged balls 81 disposed in apertures 82 for bearing against the dovetail projecting portion 7 of the support 6 to prevent any free play therebetween. A longitudinally extending shaft 11 having reduced end portions 12 and 13 on opposite ends thereof is journaled in the bore 14 in the bushing 4. A crank arm 15 is secured to the reduced end 12 of the shaft 11 by shrinking or any other suitable means, the crank arm 15 being movable in a recess 16 in the support plate 6. A roller cam 17 is secured to the outer end of the crank arm 15 by pin 18. The roller cam 17 is disposed in a vertically extending slotted portion 19 in the reciprocating head 9 and causes it to reciprocate upon rotation of the crank arm 15. A knurled handle 21 having longitudinally extending apertures 22 is locked fixedly on the bushing 4 by lock screws 23 so that rotation of the handle 21 rotates the bushing 4, the plate 6 and the head 9. Spring-urged balls 24 are disposed in the apertures 22 and bear against a thrust plate 25 to hold the flanged portion 5 of the bushing 4 in the countersunk portion 3 of the aperture 2 in the support 1. A second handle 27 is disposed on reduced end 14 of the shaft 11 and has an outwardly extending hub portion 28 which fits into the bore 29 in the handle 21. The handle 27 is secured to the reduced end 14 of the shaft 11 by means of a locking screw 30, the handle 21 having a radially extending aperture 32 to permit rotation of the lock screw 30 by a screwdriver. A face plate 33 having an arcuate slot 34 is secured to the bushing 4 by any suitable means such as shrinking, and an indicating semi-circular plate 35 is disposed around the periphery thereof to indicate the amount of rotation of the bushing 4 and the sliding head 9. An indicating finger 37 is secured to a support member 38 disposed on the top of the support 1 by a cap screw 39. The face plate 33 is locked by means of a threaded locking member 40 having a threaded portion 41 for threadable engagement with a threaded aperture 42 in the support 1.

Stop members 70 may be disposed in the semi-circular shaped arcuate slot 34 in the face plate 33 to limit the rotational movement of the face plate and the attached bushing 4 and the tool holder 50.

A tool holding arm 50 carries a dressing tool

51 for dressing a grinding wheel (not shown) and has a beveled or V-shaped engaging surface 52 for engaging a complementary beveled or V-shaped engaging surface 53 on the reciprocating head 9. Complementary engaging members 52 and 53 have threaded apertures 54 and 55 adjacent the bottom portions thereof for alternately engaging a screw member 56 to secure a plate member 57 adjacent the bottom of one or the other of the complementary engaging members 52 and 53. Complementary engaging surface 52 has a longitudinally slit portion 58 for receiving a locking screw member 59 which engages a threaded aperture 60 in the complementary engaging surface 53. The tool holding arm 50 has a horizontally split portion 62 with a dovetail groove 63 adjacent the outer end thereof. A removable tool holding member 64 has a dovetail projection 65 for engaging the dovetail groove 63 in the tool holding arm 50. A locking screw bolt 66 extends through the tool holding arm 50 and threadably engages a threaded aperture 67 to secure the dovetailed projection 65 on the tool holding member 64 in the dovetailed groove 63.

The slidable head 9 is held against reciprocation by locking members 44 and 45 secured by screw bolts 47 and 46 respectively on the support plate 6.

In operation, the tool holding arm 50 is moved to a position shown in Fig. 5 to dress a convex surface on a grinding wheel as shown in Fig. 5-a. The stop member 57 is secured adjacent the bottom of the engaging surface 52 by the screw member 56, and the measurements are made between the stop member 57 and the bottom of the complementary engaging surface 53. For dressing a concave surface as shown in Fig. 6-a, the stop member 57 is attached adjacent the bottom of the engaging surface 53 as shown in Fig. 6 and measurement is made between the stop member 57 and the bottom of complementary surface 52. Dressing tool 51 is centered by the use of any suitable measuring instrument or block. After the tool 51 is centered, the engaging members 52 and 53 are moved relative to each other and measured. It will be noted that the wedging action between the beveled surfaces of members 52 and 53 and between the outer face of the reciprocating head 9 provides a secure connection once the measurements are made and the tool holding arm 50 is set for operation. The engaging surfaces 52 and 53 are substantially V-shaped.

When it is desired to dress the grinding wheel tangent to the radius thereof, locking member 40 is released and the face plate 33 is rotated by means of handle 21 to the desired angular position and the face plate 33 is then locked by the locking member 40, thereby locking the attached tool holding arm 50 in a predetermined angular position. The locking members 44 and 45 are then rotated to free reciprocating head 9, thereby permitting reciprocating movement of the tool holding arm 50. The handle 27 is then rotated, the cam roller 17 on the end of the crank arm 15 reciprocates in the slotted portion 19 in the reciprocating head 9 and the tool holding arm 50 reciprocates, thereby dressing the grinding wheel to the desired angle tangent to the radius selected.

It will be evident from the foregoing that I have provided a grinding wheel dresser which is very simple in construction and operation and with which a grinding wheel may be dressed to

very close tolerances, which has simple means of taking accurate measurements, and in which simple means are provided for dressing the wheel tangent to any predetermined radius with all parts of the machine sealed against emery dust and dirt.

Various changes may be made in the specific embodiment of my invention without departing from the spirit thereof, or from the scope of the appended claims.

What I claim is:

1. A radius tangent dresser comprising a support member having a bore, a bushing journaled in said bore having a flanged portion on one end thereof, a shaft journaled in said bushing, a support plate fixed to said flanged portion of said bushing having an outwardly projecting male portion with undercut sides, a slidable head having a female projecting portion engaging the undercut sides of said male portion for straight line motion relative thereto, said slidable head having a vertically slotted portion centrally thereof enclosed by said projecting male portion on said support plate, a crank arm attached to said shaft, a roller cam on the end of said crank arm slidable in a straight line in said slot in said slidable head upon rotation thereof whereby said slidable head is reciprocated, aligned handles on said bushing and said shaft, respectively, for rotating same, and a straight line movable tool attaching member carried by said slidable head and movable normal thereto for attaching a tool holder to said slidable head, said crank arm and the vertically slotted portion in said head being enclosed in operation.

2. A radius tangent dresser as set forth in claim 1 wherein said bushing has a shoulder portion held against the side of said support member by spring urged members engaging the opposite side of said support member and disposed in the handle attached thereto.

3. A radius tangent dresser as set forth in claim 1 wherein one side of said outwardly projecting female portion of said slidable head is secured by removable fastening members whereby said head may be removed.

4. A radius tangent dresser as set forth in claim 1 wherein said grooved portions of said female projecting portion on said head have spring urged ball members disposed laterally therein for engaging the male projection on said support plate.

5. A radius tangent dresser as set forth in claim 1 wherein locking members are carried by said support plate to engage opposite ends of said sliding member to lock it against sliding movement.

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