June 4, 1963 G. R. WHITTENBERG 3,091,900

WORK SUPPORTING MEANS FOR CENTERLESS GRINDERS

Filed Sept. 2, 1960 3 Sheets-Sheet 1

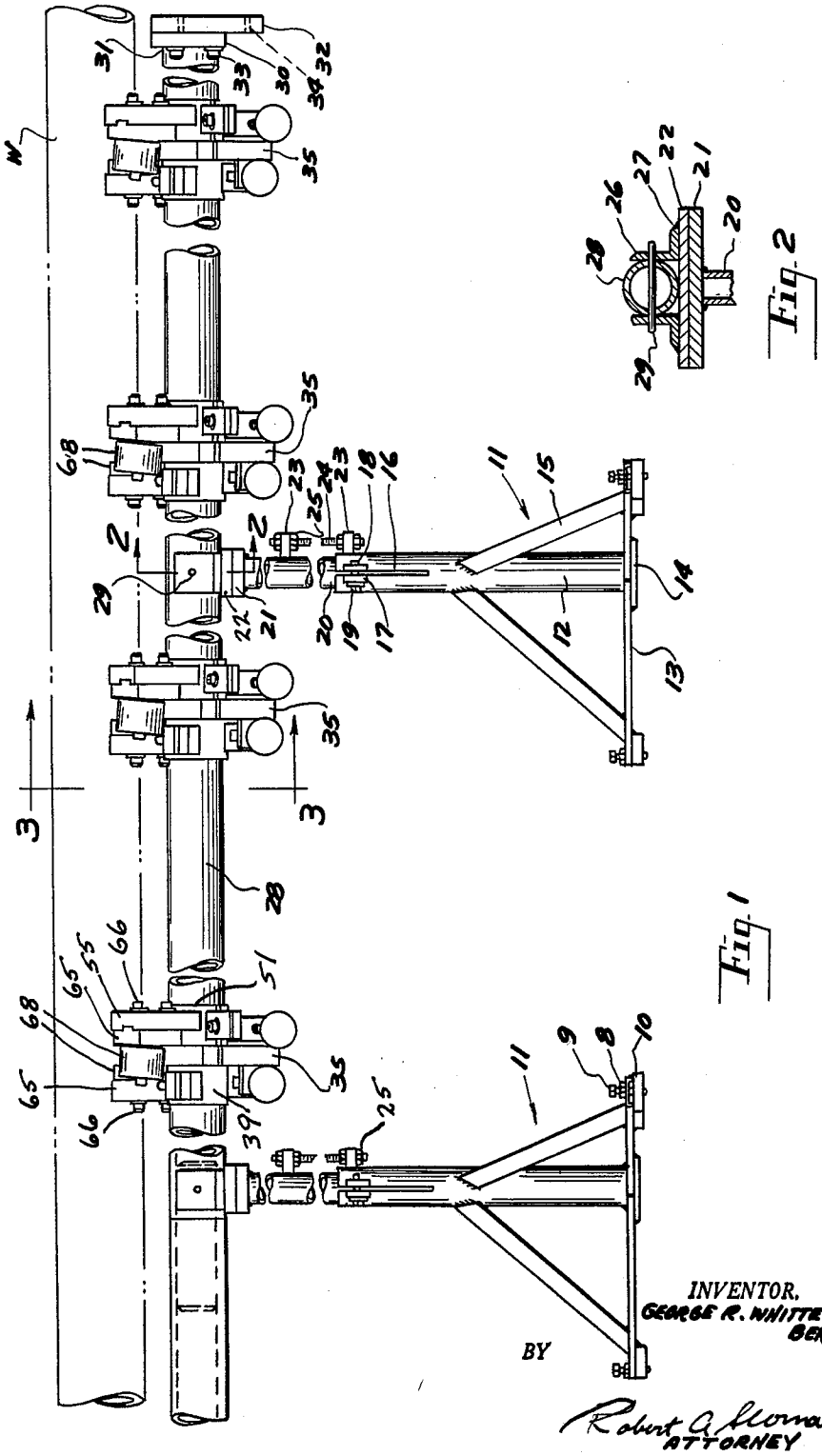

Fig. 1

Fig. 2

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June 4, 1963 G. R. WHITTENBERG 3,091,900

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Filed Sept. 2, 1960 3 Sheets-Sheet 2

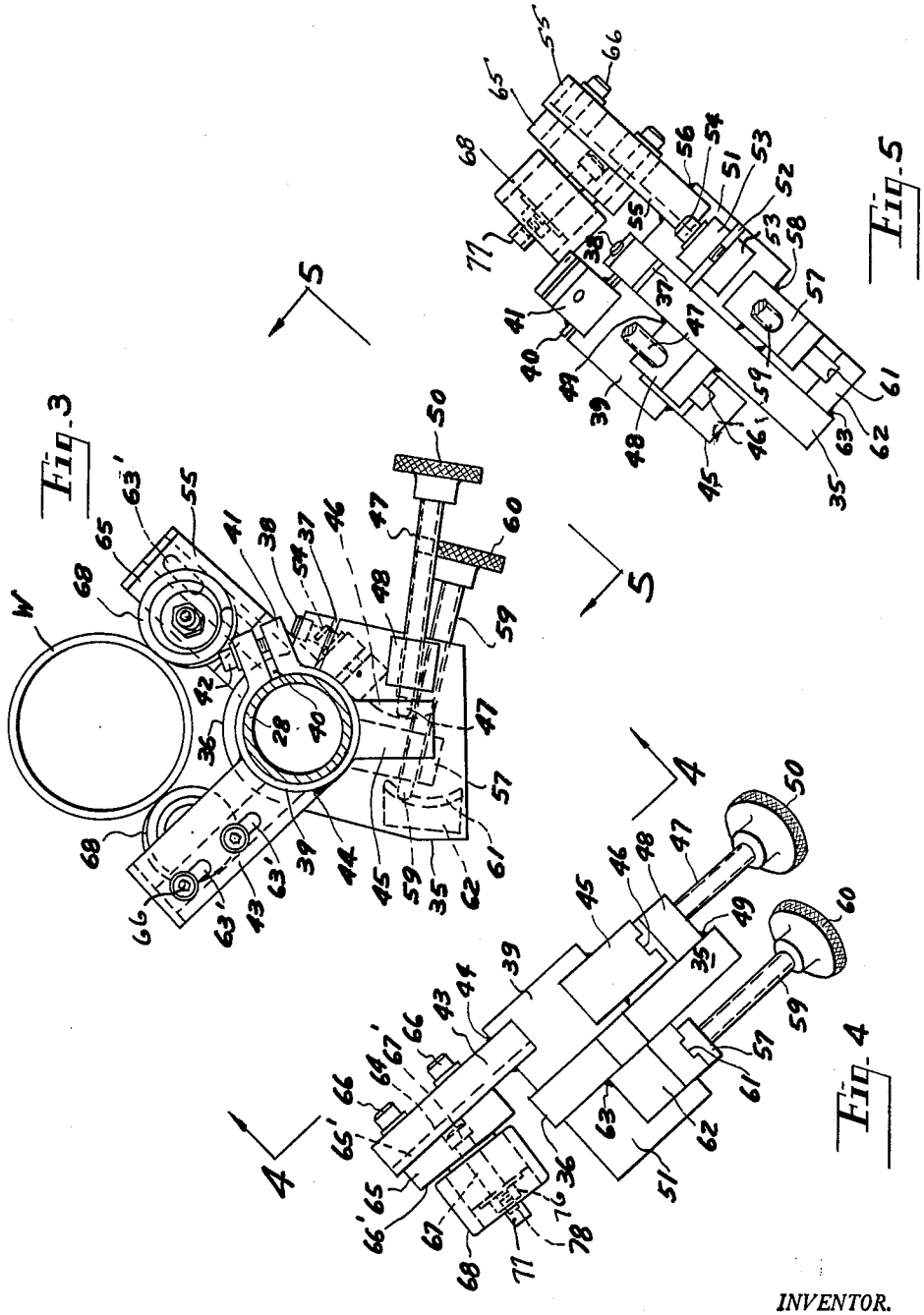

Fig. 3

Fig. 5

Fig. 4

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WORK SUPPORTING MEANS FOR CENTERLESS GRINDERS

Filed Sept. 2, 1960 3 Sheets-Sheet 3

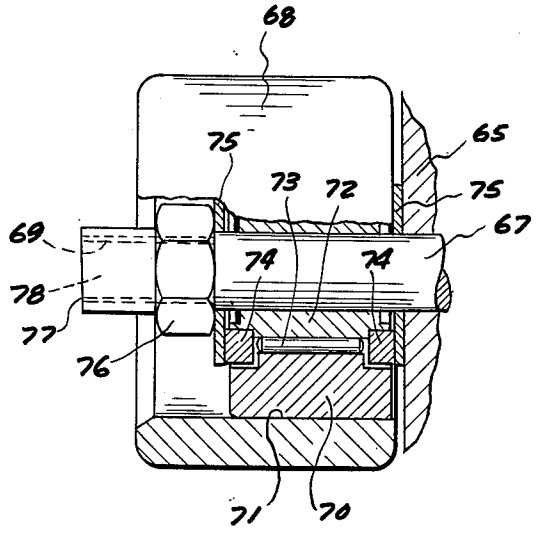

Fig. 6

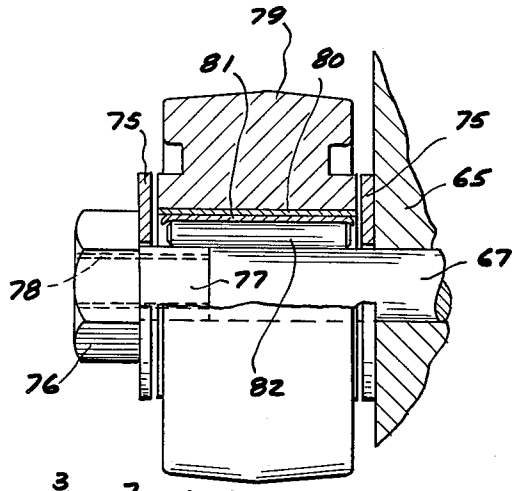

Fig. 7

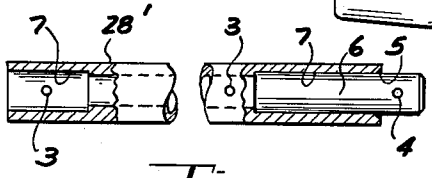

Fig. 8

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3,091,900

WORK SUPPORTING MEANS FOR CENTERLESS GRINDERS

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6 Claims. (Cl. 51—236)

The present invention relates to work supporting means for centerless grinders and more particularly to a support for long cylindrical objects such as tubes or similar cylindrical workpieces which are fed towards a centerless grinder for operation thereon and which may also be employed to support said workpieces as they are moved through the grinder, after a grinding operation.

Primarily, the present invention is directed to an elongated horizontal guide tube connected to a portion of the centerless grinder and mounted upon a plurality of longitudinally spaced adjustable supports and with cooperating means in the nature of cross arms adjustably mounted upon the guide tube for supportably receiving a cylindrical workpiece, as it is projected either into a centerless grinder or outwardly therefrom or both.

The present invention is an improvement over my prior United States Patent 2,775,077, dated December 25, 1956, which was directed to a work support means for centerless grinders. In that construction, the cross arms for supporting the workpiece were mounted upon individual guide sleeves supported upon the horizontal guide tube of the attachment and with respect to the horizontal guide tube and fixedly clamped thereto in the desired adjusted position.

The present invention is primarily directed to an improved workpiece support and particularly in the nature and construction of the cross arms and their mounting upon the horizontal guide tube together with the method of adjustment thereof, being a substantial and appreciable improvement over what is shown in my prior patent above identified.

It is a further object of the present invention to provide a new and improved manual control for the cross arms by which their angularity may be readily adjusted and wherein the need for resecuring the mounting sleeves upon the guide tube is obviated, unless desired. In other words, the angular adjustment of the cross arms may be made in the present improved device by merely the manual turning of control screws in one direction, or the other.

A further object of the present invention resides in the construction of the mounting brackets for the guide rollers for the workpiece and their mounting and adjustment upon the respective cross arms.

Another object is to provide a new form of roller assembly in the nature of a steel roller which is readily interchangeable with a rubber roller, if desired.

Another object of the present invention is directed to a horizontal guide tube having a telescoping feature whereby the said tube may be made in lengths desired so as to extend for distances up to 50 feet or more depending upon the length of the workpiece contemplated.

Accordingly it is a further object of the present invention to provide a means for supporting workpieces for centerless grinders wherein an increased size and length of workpiece may be employed than heretofore possible.

These and other objects will be seen from the following specification and claims in conjunction with the appended drawings in which:

FIG. 1 is a fragmentary side elevational view of the present work supporting means as adapted for mounting upon one side, such as the out-feed side of a centerless grinder, for illustration.

FIG. 2 is a fragmentary section taken on line 2—2 of FIG. 1.

FIG. 3 is a fragmentary section on an increased scale taken on line 3—3 of FIG. 1, illustrating the cross arm assembly.

FIG. 4 is a section, or view taken on line 4—4 of FIG. 3.

FIG. 5 is a view taken on line 5—5 of FIG. 3.

FIG. 6 is a partially sectioned view of a steel roller assembly, as mounted upon the cross arms of the present fixture with a portion of the mounting bracket fragmentarily shown.

FIG. 7 is a similar view, illustrating the interchangeable rubber roller assembly.

FIG. 8 is a fragmentary longitudinal section of the horizontal guide tube having telescoping features.

It will be understood that the above drawings illustrate merely a preferred embodiment of the invention and that other embodiments are contemplated within the scope of the claims hereafter set forth.

Referring to the drawings, and particularly FIG. 1, the present fixture includes a plurality of standards generally indicated at 11, one of which is described, for illustration. The present standard includes the upright cylindrical support 12 whose lower end is fixedly secured as by welding to a horizontally disposed base, which in the preferred embodiment consists of three angularly spaced channels 13 rigidly connected together including the central support plate 14 and each of the channel supports 13 terminating in a depending block or pad 10 adapted for engagement with a ground surface.

Adjusting screws or bolts 9 project down through the respective pads 10 in order to provide a correction for any unevenness in the ground or floor surface with suitable jamb nuts 8 being employed for securing the bolts 9 in adjusted position.

The tubular standard 12 is reinforced in upright position with respect to the base by a series of angular stays 15 whose respective ends are fixedly secured as by welding to portions of the base 13, as well as the tube 12.

The upper end of cylinder 12 is slit downwardly as at 16 on one side thereof. Opposed ears 17 are arranged upon opposite sides of the slit portion 16 of cylinder 12 and are transversely apertured to receive the bolt 19 which threadably engages one ear at 18 by which the upper end portions of cylinder 12 may be drawn together to fixedly retain the vertically adjustable rod or support 20.

The horizontally disposed perfectly flat and ground support plate 21 is positioned over the top of support 20 and fixedly secured thereto as by welding, also shown in FIG. 2. The rectangular floating plate 22 also perfectly flat and ground on its undersurface is loosely and supportedly positioned upon support plate 21 and on its top surface has fixedly secured thereto as by the welds 27, the pair of upright opposed L-shaped angle members 26 between which supportedly extends the elongated horizontal guide tube 28.

The transverse pin 29 projects through apertures in the angle members 26 and the said tube 28 for flexibly joining said tube to the floating plate as resting upon the support plate 21 on the vertically adjustable support 20.

This same type of construction is employed for each of the standards 11 depending upon how many are required, in turn depending upon the length of the horizontal guide tube, which has been shown broken away, for illustration, but which normally may be of a limited length, such as 12 feet, but which could extend to considerable length up to 55 feet or more, as desired, with lengths of the respective horizontal guide tubes interconnected in a tele-

scoping manner as will be hereafter described in conjunction with FIG. 8.

For this purpose, the horizontal guide tube, foreshortened in FIG. 8 for illustration, and indicated at 28' includes a longitudinal bore therethrough with counterbores of increased diameter adjacent its outer ends, as shown at 7. Projected into one of said counterbores is a shaft 6, which is snugly positioned therein bearing against the shoulder defined by the counterbore and rigidly retained axially within the tube as by the welds 5. The free end of the shaft 6 projects outwardly from one end of the guide tube 28' and has a transverse aperture 4.

The end portion which projects outwardly of the guide tube is adapted for mounting upon a master fixture or to a preceding telescoping attachment, to thus provide a means for rendering the overall horizontal guide tube the desired length to meet working conditions. There are shown additional transverse apertures in the tube as at points 3 by which an intermediate portion of the said tube may be mounted upon the standard 11, as above described with respect to FIG. 2, and for the additional purpose of securing a telescoping section upon the left end of the said tube as shown in FIG. 8.

Vertically aligned bosses 23 project from the respective sides of the cylinder 12 and the rod 20 as shown in FIG. 1, with transverse apertures in vertical registry to receive therethrough the elongated stud 24 which threadedly receives thereon the series of adjusting nuts 25, above and below the respective bosses 23.

Accordingly, upon loosening the bolt 19, and by proper adjustment of the nuts 25, the said rod 20 may be vertically adjusted with respect to the cylinder 12, after which the parts may be re-secured in asesmbled relation by tightening of bolt 19 and by the securing of the additional nuts 25.

Referring to the right end of FIG. 1, there is shown one means for attaching a horizontal guide tube 28 to a portion of the through feed fixture of the centerless grinder. This method of attachment may differ with different types of grinding machines. Generally speaking however, there is provided upright mounting pad 32 which is suitably apertured at 34 by which the said pad may be directly bolted to a portion of the centerless grinding machine.

The mounting pad 32 includes forwardly extending upright plate 30 which is normally apertured to receive the end of the horizontal guide tube which is fixedly secured therein as by welding or the like to thus provide a rigid connection of the said horizontal guide tube with respect to a portion of the centerless grinding machine. For this purpose the additional fasteners 33 are employed.

Mounted in longitudinally spaced relation upon the horizontal guide tube, with the number being determined by the length of the said tube, are a series of bracket assemblies adapted to movably support longitudinally spaced portions of the elongated tubular work indicated by the letter W.

One of these supports mechanisms is described. Each of said support mechanisms includes the central bracket plate 35, best illustrated in FIGS. 3, 4 and 5 whose upper end is curved as at 36 and transversely apertured for positioning as desired over the horizontal guide tube 28. The upper portion of the bracket 35—36 is transversely slit as at 37 all the way to the central aperture which receives the guide tube 28, and there is employed a suitable locking screw 38 which projects through a portion of the plate 35 and threadedly engages another portion thereof for drawing the said plate in an upright position tightly against the horizontal guide tube 28 in the desired longitudinally adjusted position.

Cross Arm Assembly

Cylindrical sleeve 39 is slidably provisioned upon tube 28 upon one side of the bracket 35, being transversely slit along its length on one side as indicated at 40 and including upon opposite sides of the slit a pair of parallel spaced ears 41 which may be drawn together as desired by the headed bolt 42, which extends through one ear and threadedly engages the other.

The drawing up of said ears towards each other provides one means for fixedly securing the arm supporting sleeve 39 in a particular desired adjusted position angularly with respect to the support tube 28. This is particularly useful where work employed is all the same diameter and there is no need for angularly adjusting the cross arms as hereinafter described.

A first cross arm 43 extends angularly upward at an acute angle with respect to a tube 39 and is fixedly secured thereto as by the welds 44. Control plate 45 extends from a bottom portion of the sleeve 39 and is fixedly secured thereto as by welding. Upon one upright side edge of the control plate 45 there is provided an elongated upright groove 46 which cooperatively receives one end of the adjusting screw 47. Said screw is threaded through the lateral boss 48 secured as by welds 49 to one side of the upright bracket 35, as particularly shown in FIGS. 4 and 5. Said screw terminates in the knurled handle 50, by which the screw 47 may be rotated in one direction or the other.

With the bracket 35 fixedly secured with respect to the guide tube 28, rotation of the screw 50 and consequential longitudinal movement thereof relative to the boss 48 will cause or permit rotary adjustment of the sleeve 39 with respect to the guide tube 28, provided of course the securing bolt 42 has been released. By turning the screw 50 in one direction as for example counter clockwise, as viewed in FIG. 3, the cross arm 43 would have a tendency to drop by gravity in a counterclockwise direction.

On the other hand by rotating the screw 50 in the opposite direction causing the screw 47 to move to the left, the cross arm 43 would rotate upwardly in a clockwise direction.

This completes the assembly of the first cross arm mounting. There is a second cross arm assembly arranged upon the opposite side of the fixture or bracket 35 which includes a second relatively short sleeve 51 which is loosely provisioned upon the guide tube 28 and normally bears against the opposite side of the bracket 35. Sleeve 51 is longitudinally slit as at 52, and a pair of spaced ears 53 project radially outward from opposite sides of said slit portion, and are transversely apertured to receive the locking bolt 54, which extends loosely through one ear and threadedly engages the other to provide a means for drawing up the free end portions of the sleeve 51 tightly with respect to the guide tube 28, if desired.

A second cross arm 55 extends at an acute angle upwardly and outwardly with respect to the sleeve 51 and is fixedly secured thereto as by the welds 56, FIG. 5. A second control plate shown in dotted lines at 57 in FIG. 3, also better illustrated in FIGS. 4 and 5 extends downwardly from a lower portion of the rotatively adjustable sleeve 51 and has a transverse threaded bore therethrough, which cooperatively receives the screw 59 having a knurled handle 60. Said screw at its free end, as shown in FIG. 3 projects into an arcuate elongated groove 61 formed in the side wall of the block or boss 62, fixedly secured upon the opposite side of plate 35 as by the welds 63, best shown in FIGS. 4 and 5.

In this case the bracket 35 serves as a reaction base so that rotation of the screw 59—60, with the said screw anchored against longitudinal movement against the block 62, wil cause a longitudinal movement of the control plate 57 with respect to the said screw in turn causing a rotary action of the cross arm supporting sleeve 51. By rotating the said screw in one direction, as for example, clockwise, as viewed in FIG. 3, the cross arm supporting sleeve 51 will rotate in a counterclockwise direction. If the screw 60 is rotated in the opposite direction, there will be a relative feed

movement of the control plate 57 to the left with respect to the screw 59 with the result that the sleeve 51 and connected cross arm will drop downwardly by gravity.

In view of the employment of the central mounting bracket 35 which is fixedly secured to the guide tube 28, and employed as a reaction member, rotation of the control screws 47 and 59 will permit angular adjustment of the respective work supporting cross arms 43, 55.

Mounting Bracket Assembly for Rollers on Cross Arms

The mounting brackets upon each of the cross arms 43 and 55 are the same and therefore only one is described. Formed upon the interior face of the cross arm 43, as well as the cross arm 55, there is provided an elongated groove 64 which is off center with respect to the longitudinal center line of the said arms. A pair of longitudinally spaced elongated slots 63' are formed through the arm 43 adapted for the reception of the fastening bolts 66 by which the mounting bracket 65 is slidably provisioned and adjusted and secured with respect to the corresponding cross arm 43.

The mounting bracket 65 is in the nature of an elongated block and projecting from one side thereof off center with respect to its longitudinal axis there is provided an elongated key 65' of rectangular cross section which is slidably positioned within the above described elongated groove 64'. The outer surface of the mounting bracket 65 is tapered as at 66' at an angle of approximately 4 degrees, for illustration. Arranged at right angles to this surface 66' there is provided a transverse bore and counterbore adapted to snugly receive and support the outwardly projecting bolt 67 whose enlarged head 67' is fixedly secured within the said counterbore and wherein the axis of the said bolt is at right angles to the inclined surface 66', said bolt terminating in the reduced threaded end 78, as best illustrated in FIGS. 6–7, as well as in FIG. 4.

A suitable work supporting roller 68, as for example a steel roller, is journaled upon the angular shaft 67 and fixedly secured thereto, as by the fasteners 76—77 hereafter described in conjunction with FIGS. 6–7. In view of the 4-degree inclination of surface 66' and accordingly a similar inclination of the right angular shaft 67 with respect to surface 66' there is thus provisioned within the work supporting wheel 68 a helix angle whereby, upon rotation of the workpiece as it moves outwardly of the grinding machine, the said roller 38 in cooperation with a corresponding roller upon the other cross arm 55, serves to assist in the longitudinal feeding of the work outwardly with respect to the horizontal tube 28.

The specific structure of the wheel mounting is shown in FIGS. 6 and 7.

Wheel Mounting Assembly for Cross Arm Mounting Brackets

Referring to FIGS. 6 and 7, and particularly FIG. 6, the bolt 67 projects outwardly of the mounting bracket 65 and has provisioned thereover the steel roller assembly. This assembly includes within the roller body 68 and pressed thereinto from one end thereof as at 71 an outer race 70. The outer race has provisioned therein an inner race 72 with a series of roller bearings 73 interposed.

Annular rings 74 are pressed onto the inner race upon opposite sides thereof for loosely retaining the said rollers 73, with portions of the said rings nested within corresponding recesses of annular form within the outer race 70. This assembly is projected over the stud 67 with suitable washers 75 interposed, as shown in FIG. 6 and the combination sleeve nut 76 with elongated sleeve 77 is threaded over the reduced threaded end 78 of the said stud and pressure thus is applied longitudinally with respect to the adjacent washer 75 for thus securing the steel roller assembly 68 in position.

Under certain conditions it is desirable to employ a rubber roller instead of a steel roller. This would be so in casses where the workpiece is of a softer metal such as bronze or brass, or aluminum. For this purpose, sleeve nut 76—77 is manually removed from within the adjacent bore 71 within the steel roller 68 and the entire assembly is removed from the stud 67. This is replaced by the roller assembly 79, shown in FIG. 7, which includes a formed rubber or equivalent roller 79 having an inner metallic race 80 which receives the retainer 81 for the series of roller bearings 82, retained therein.

This assembly is projected over the stud 67 with the washers 75 interposed as indicated, and the same sleeve nut, with its threaded bore 69, projected over the threaded extension 78 of the said stud 67. In this construction, however, it is noted that the sleeve portion 77 is projected over the stud first, as shown in FIG. 7 so that the nut 76 operatively engages the adjacent washer 75, but at the same time the inner end of the sleeve 77 operatively engages the stud 67 to thus prevent binding of the roller assembly.

According it is a relatively simple matter to switch from one type of roller to another. All that is necessary is to loosen the sleeve nut 76—77, remove the same and substitute the desired roller.

Accordingly, as above described, a suitable roller assembly 68, for illustration, being a steel roller, or alternately the rubber roller 79 in FIG. 7 is mounted upon respective mounting brackets or blocks 65 carried adjustably upon the cross arms 43 and 55 respectively.

Another advantage in the present construction is that means are provided for an increased diameter workpiece and employing a large angle of separation between the arms 43 and 55. For this purpose, it is noted that the mounting bracket 65 may be slid outwardly from the position shown in FIG. 3 merely by removing the bolts 66 and then re-inserting only one of the bolts 66 through the outer of the two elongated apertures 63' which will nevertheless, in view of the elongated key 65', provide a means of fixedly securing the wheel mounting brackets in the outermost position.

The present construction also permits another advantage. As shown in FIGS. 3, 4 and 5, should there be a longitudinal adjustment of the mounting plate or bracket 35, with respect to the horizontal guide tube 28, on loosening of the fastening screws 38, the associated sleeves 39 and 51, which respectively mount the cross arms 43 and 55, will move as a unit therewith. This is due to the fact that the screw 47, which is retained with respect to the bracket 35 interlocks with respect to the groove 46 in the control arm 45 on sleeve 39. At the same time the second screw 59, secured to the control arm 57 of the sleeve 51, at its end, interlocks with a corresponding groove 61 on the bracket 35. Thus, these units will slide together in unison on longitudinal adjustment of the central bracket 35.

It is contemplated, as a part of the present invention, that for certain particlar jobs where the workpiece diameter is maintained constant, once the screws 47—59 have been manually adjusted to determine the correct inclination of the cross arms 43 and 55, the securing screws 42 and 54 may be tightened to thus effectively retain the respective sleeves 39 and 51 in a particular and fixed position with respect to the horizontal guide tube 28.

Another situation, where workpieces moving through the centerless grinder and outwardly therefrom are of varying diameters and wherein it is desired from time to time to regulate the inclination or angle of the cross arms 43 and 55, depending upon the diameter of the workpiece W, the set screws or securing bolts 42 and 54 are retained loosely with the entire control of the respective assemblies for the cross arms under the operation of the respective screws 47 and 59.

Accordingly all that is necessary for effecting angular adjustment of the said cross arms is to rotate the screws

47 and 59 in equal amounts in the same directions simultaneously.

The above described fixture for use with a centerless grinder is capable for supporting workpieces of considerable length and weight and of various diameters. Normally these grinders include means facilitating axial movement of a workpiece toward the grinder and rotary movement of the workpiece about its axis.

While centerless grinders generally are provided with means to effect both said movements, the function of such means becomes less effective when the workpieces are of considerable length and weight. It is in such cases, particularly that the present fixture has proved itself highly effective.

As above set forth, the arms 43 and 55 are set at an angle to each other so as to provide a V-shaped bracket so that the work piece W, such as a tube or other cylindrical object will be disposed in a gap between the arms and will be supported from opposite sides by the oppositely directed rollers 68 journaled on the respective arms 43 and 55.

In the operation of the present fixture, reference must be made to the fact that the grinder, which includes a grinding wheel and a control wheel, also includes a work rest on which the work is supported in the course of the grinding operation. Accordingly, the present fixture is used either for receiving the work after it has been ground, or for supporting the work, as it is projected into the machine or for both. The bracket assemblies or standards shown in FIG. 1 must be elevated to a correct position so that the work W within the brackets arranged in longitudinally spaced relation, will be held at the level of the support within the grinding machine.

This is effected in the first instance by the adjustment of the studs and nuts upon the standard, as indicated at 24 and 25 in FIG. 1. A further adjustment is also made within the bracket assembly, including the opposed arms 43 and 55, between which rests the work supported upon the respective rollers 68. These rollers are normally journaled upon the longitudinally adjustable block or mounting bracket 65.

It is contemplated that under certain conditions, the longitudinally adjustable mounting bracket 65 could be omitted, and the supporting shafts for the rollers mounted directly upon the arms 43 and 55. In any event, as the diameter of the workpiece is supported by the rollers varies with individual tubes, it may be necessary to adjust the angle between the arms so as to support the work on the rollers, and at the same time maintain the same out of engagement with the sleeves 39 and 51 on which the arms are mounted, as well as out of engagement with the longitudinally extending horizontal guide tube 28, shown in FIG. 1.

As a part of this operation in adjusting the machine, the securing screws 42 and 54 must be released so that the respective sleeves 39 and 51 are freely rotatable upon a support tube 28. In normal operation, it is not absolutely necessary that the said sleeves be tightly secured to the said tube 28, though under certain conditions this may be advisable to improve rigidity, and particularly where there is to be little or no angular adjustment of the respective arms 43 and 55.

Accordingly, on release of the said sleeves 39 and 51, the adjustable screws and their respective handles 50 and 60 may be rotated to thus achieve the correct angular relationship in a positive manner between the respective arms. To the extent that it may be necessary, the securing bolts 66, on the said arms are loosened to permit longitudinal sliding adjustments of the respective mounting brackets or blocks 65 so that the respective rollers 68 are correctly positioned so as to support the work in the manner shown in FIG. 3.

Normally with the increase, or decrease, of the angle between the two arms 43 and 55, it will be necessary to adjust the position of the rollers to supportably bear against undersurface portions of the workpiece from its opposite sides. This may be accomplished by loosening the bolts 66 and sliding the blocks 65 inwardly or outwardly, as desired, in their respective guideways 64 in respect to the said arms in view of the longitudinal slots 63' formed in said arms.

If the extension required is more than provided within the limit of the slot 63', then the said bolts 66 are both disengaged and the blocks or mounting brackets slid longitudinally outward towards a maximum outward position and are reconnected using only one of the bolts 66. This is possible, and at the same time, still retaining rigidity in view of the fact that there is provided an elongated groove 64 formed within each of the said arms 43 and 55 and a corresponding elongated key 65' of similar shape, depending from the said blocks 65 for sliding cooperative engagement within the guides 64.

Accordingly, the present mounting bracket is adapted to receive workpieces of the greatest diameter.

In normal operation, the workpiece to be ground is rotated about its longitudinal axis by a regulating wheel which forms a part of the grinding machine and is also moved axially by means of the grinder. Inasmuch as the work resting upon the respective rollers 68 within the support fixture assemblies rotates about its axis, it imparts a corresponding rotary movement to each roller. Inasmuch as the rollers are set at a helix angle with respect to the work axis, as in the range of 4 degrees, for illustration, they propel the work in a screw-like manner, longitudinally of the grinder from which, or to which, the present mounting bracket assembly is positioned.

Having described my invention, reference should now be had to the following claims.

I claim:

1. A fixture for use with a centerless grinding machine for the purpose of supporting a workpiece to be ground by said machine, the fixture including a horizontal guide tube, a plurality of spaced standards supportably engaging said tube, a plurality of V-shaped bracket assemblies for supporting the workpiece, each bracket assembly comprising a reaction bracket secured to said guide tube, a pair of sleeves slidably mounted on said guide tube and bearing against opposite sides of said reaction bracket, an arm radially extending from each sleeve, the arms being disposed in a V-shaped formation with respect to each other, a roller mounted upon each arm, the rollers on both arms being adapted to support a workpiece in the gap between the two arms, means to adjust the angular position of each arm with respect to the other, said means including a pair of operable screw means adjustably interconnecting said reaction bracket with said arm mounting sleeves respectively, the roller mounting including a stud shaft projecting from each arm having a reduced threaded end, said roller being journalled upon said shaft, and an elongated sleeve nut threaded on the free end of said shaft with the nut end of said sleeve nut retaining the roller thereon, said roller adapted to be replaced by a rubber roller selectively positioned upon said shaft and with said sleeve nut adapted to be mounted in reversed position upon the reduced end of said shaft with the sleeve end thereof providing an extension of said shaft adapted to supportably receive said rubber roller, the outer nut end of said sleeve nut adapted to retainingly engage said rubber roller.

2. A fixture for use with a centerless grinding machine for the purpose of supporting a workpiece to be ground by said machine, the fixture including a horizontal guide tube, a plurality of spaced standards supportably engaging said tube, a plurality of V-shaped bracket assemblies for supporting the workpiece, each bracket assembly comprising a reaction bracket secured to said guide tube, a pair of sleeves slidably mounted on said guide tube and bearing against opposite sides of said reaction bracket, an arm radially extending from each sleeve, the arms being disposed in a V-shaped formation with re-

spect to each other, a roller mounted upon each arm, the rollers on both arms being adapted to support a workpiece in the gap between the two arms, means to adjust the angular position of each arm with respect to the other, said means including a pair of operable screw means adjustably interconnecting said reaction bracket with said arm mounting sleeves respectively, the means for adjusting the angular positioning of said arms including control plates depending respectively from each of said sleeves, said screw means including a first screw threadedly mounted on said reaction bracket operatively engaging one control plate, and a second screw threadedly mounted on the other control plate and operatively engaging said reaction bracket.

3. In the fixture of claim 2, the mounting of said roller on each arm including a block upon which the roller is journaled, said block being longitudinally slidable on said arm.

4. In the fixture of claim 2, said reaction bracket being split transversely to form two opposed spaced ends, each sleeve including a portion which is split transversely to form two spaced ends, and screw means associated with said spaced ends respectively for drawing them adjustably towards each other for securing engagement respectively of said reaction bracket and sleeves upon said guide tube.

5. In the fixture of claim 2, and slotted portions on one of said control plates and reaction bracket cooperatively receiving end portions of said first and second screws for retaining said sleeves against lateral adjustments with respect to said reaction bracket.

6. In a fixture for use with a centerless grinding machine for the purpose of supporting a workpiece to be ground by said machine, the fixture including horizontal tubular means in a straight line arrangement, a plurality of longitudinally spaced standards engaging said tubular means, a plurality of V-shaped bracket assemblies for supporting said workpiece, each bracket assembly comprising a reaction bracket secured to said tubular means, a pair of sleeves slidably mounted on said tubular means and bearing against opposite sides of said reaction bracket, an arm radially extending from each sleeve, the arms being disposed in a V-shaped formation with respect to each other, a roller journaled upon each arm, each roller being adapted to be rotated in a plane obliquely to the axis of a workpiece resting thereon, and means to adjust the angular position of said arms, said means including control plates depending from each of said sleeves, first screw means threadedly mounted on said reaction bracket and on rotation longitudinally movable and operatively engaging one control plate to control rotation thereof, its sleeve and connected arm, and a second screw means threadedly engaging the other control plate and on rotation longitudinally movable and operatively engaging said reaction bracket controlling rotation of said other control plate, its sleeve and connected arm.

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