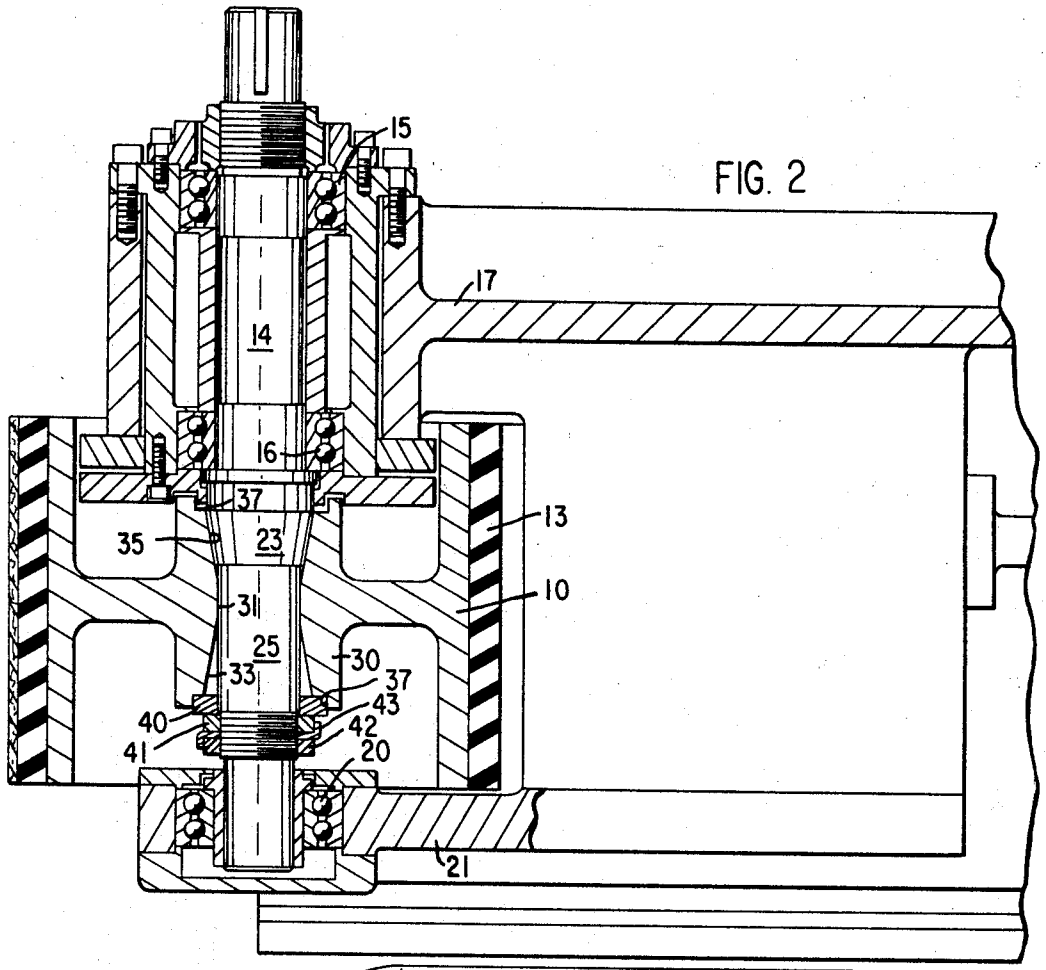
Feb. 18, 1969 R. L. SCHALLER 3,427,756

REVERSIBLE CONTACT WHEEL FOR CENTERLESS GRINDERS

Filed Dec. 30, 1966

FIG. 2



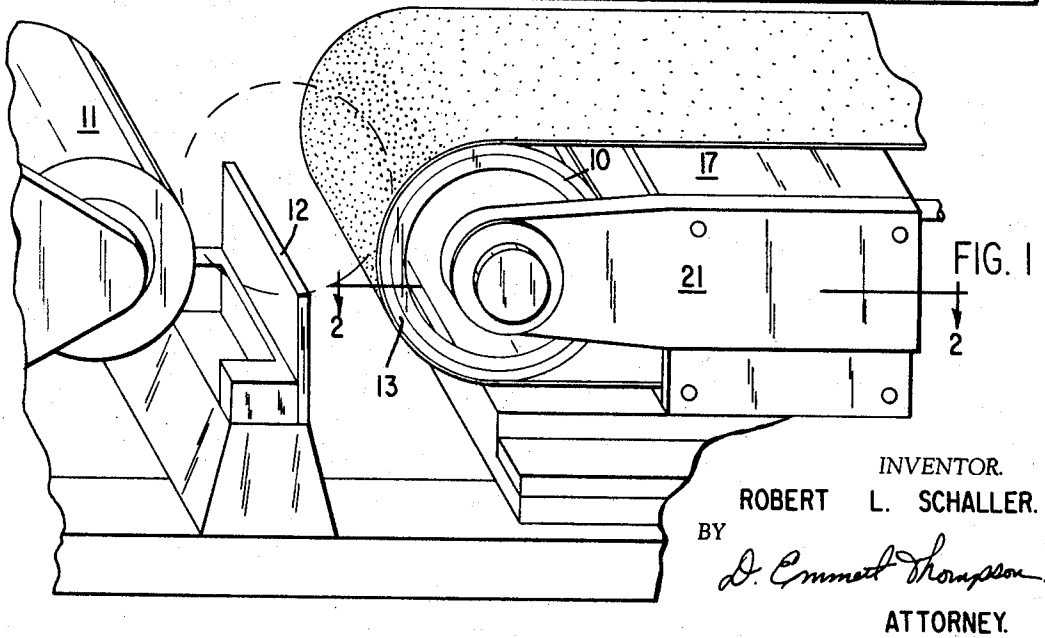


FIG. 1

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REVERSIBLE CONTACT WHEEL FOR CENTERLESS GRINDERS

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Int. Cl. B24b 21/00, 5/18, 5/00

This invention relates to a contact wheel structure for centerless grinding machines of the type employing an endless abrasive belt for performing the grinding operation on the work. The abrading belt is trained over the contact wheel and over at least one idler roll. The work piece in the form of bar, or tubular stock, is moved axially between the contact wheel and the regulating roll, the work piece being supported by a rest which is positioned intermediate the contact wheel and the regulating roll.

Frequently that end of the contact wheel, which is initially engaged by the work piece, is damaged. Damage to the contact wheel results from various causes as, for example, the work piece not being provided with a square end. Often, the work pieces in the form of bars are cut to length by being severed in the cold state by a sheer. This, on occasion, causes a portion at the end of the bar to extend radially outwardly beyond the periphery of the bar. The result is that this extending portion engages the contact wheel, damaging the surface thereof.

When the contact wheel has been so damaged, work pieces can not thereafter be ground on the machine. It is necessary to replace the wheel and return it to be resurfaced.

This invention has as an object a contact wheel structure wherein the contact wheel may be reversed end for end on the shaft on which the wheel is mounted.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

In the drawings—

FIGURE 1 is a schematic illustration of the arrangement of the contact wheel, regulating wheel and work rest in a conventional centerless grinding machine.

FIGURE 2 is a view taken on line 2—2, FIGURE 1.

Referring to FIGURE 1, **10** designates a contact wheel, **11** the regulating wheel, and **12** the work rest which is positioned intermediate the contact wheel and regulating roll **11**. The contact wheel **10** has a facing **13** formed of resilient, or semi-resilient, material adhered to its periphery. The contact wheel is mounted on a driven shaft **14** journalled in bearings **15**, **16**, mounted in the framework **17** of the grinder. The shaft has a portion extending outwardly from the bearings. The contact wheel is fixedly mounted on the extending portion of the shaft. The outer end of the shaft may be journalled in an outboard bearing **20** mounted in plate **21** fixedly secured to the frame of the machine. This general arrangement is conventional.

The contact wheel structure of my invention is illustrated in FIGURE 2. The extending portion of the shaft **14** is formed with a conical surface **23** and a cylindrical surface **25** extending outwardly from the conical surface.

The hub **30** of the contact wheel is formed, in its central area, with a cylindrical bore **31** dimensioned comparable to the cylindrical surface **25** of the shaft **14**. The ends of the hub **30** are formed with like tapered bores **33**, **35**, these bores being dimensioned and formed complemental to the conical surface **23** on shaft **14**. The

ends of the hub **30** are also formed with counterbores **37** which encircle the outer ends of the tapered bores **33**, **35**, and are concentric therewith.

When the contact wheel is mounted on the shaft **14** with one of the tapered bores, as bore **35**, engaging the conical surface **23** of the shaft, an annular member **40** is positioned in the counterbore in the outer end of the hub. The annular member **40** has an outer diameter to snugly fit the counterbore, and an inner diameter to snugly fit the cylindrical portion **25** of the shaft. A nut **41** is threaded on the shaft and serves to clamp the annular member **40** against the end of the hub **30**, and to clamp the tapered bore **35** against the conical surface **23** on the shaft. A lock nut **42** is provided and, in combination with a lock washer **43**, serves to hold the assembly in operative relationship.

If the facing **13** on the contact wheel becomes damaged as, for example, on the outer end, the contact wheel may be removed by removing the outboard bearing plate **21** and the nuts **41**, **42**. The annular member **40** is removed from the counterbore at that end of the pulley. The wheel may be then reversed end for end on the shaft, with the taper bore **33** then engaging the conical surface **23** on the shaft, and the annular member **40** repositioned in the then outer counterbore.

With this arrangement, the contact wheel may be continued in use without the necessity of resurfacing the wheel and accordingly, greatly increasing the life expectancy of the wheel.

What I claim is:

1. A contact wheel structure for centerless grinders wherein the contact wheel is reversible comprising a driven shaft journalled in bearings mounted in the grinding machine frame, the shaft having a portion extending outwardly from the bearings, said shaft being formed with an inner conical surface and a cylindrical surface extending outwardly from said conical surface, a contact wheel mounted on the extending portion of said shaft, said wheel having a hub formed intermediate its ends with a cylindrical bore, the ends of said hub being formed with like bores tapered outwardly from said cylindrical bore, said tapering bores being formed complemental to the taper of the conical surface on said shaft, the end facings of said hub being formed with like counterbores encircling the outer ends of said tapered bores and being concentric therewith, an annular member adapted to be positioned in either of said counterbores, said annular member having an outer diameter to snugly fit the counterbore, and an inner diameter to snugly engage the cylindrical portion of said shaft, said contact wheel being positioned on the extending portion of said shaft with the tapered bore in the hub of the wheel engaging the conical surface on said shaft, and with said annular member positioned in the counterbore at the opposite outer end of the hub, and means for clamping said annular member against said hub and clamping said hub against the conical surface on said shaft.

2. A contact wheel structure as set forth in claim **1**, wherein said clamping means is a nut threaded on the outer end of said shaft.

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