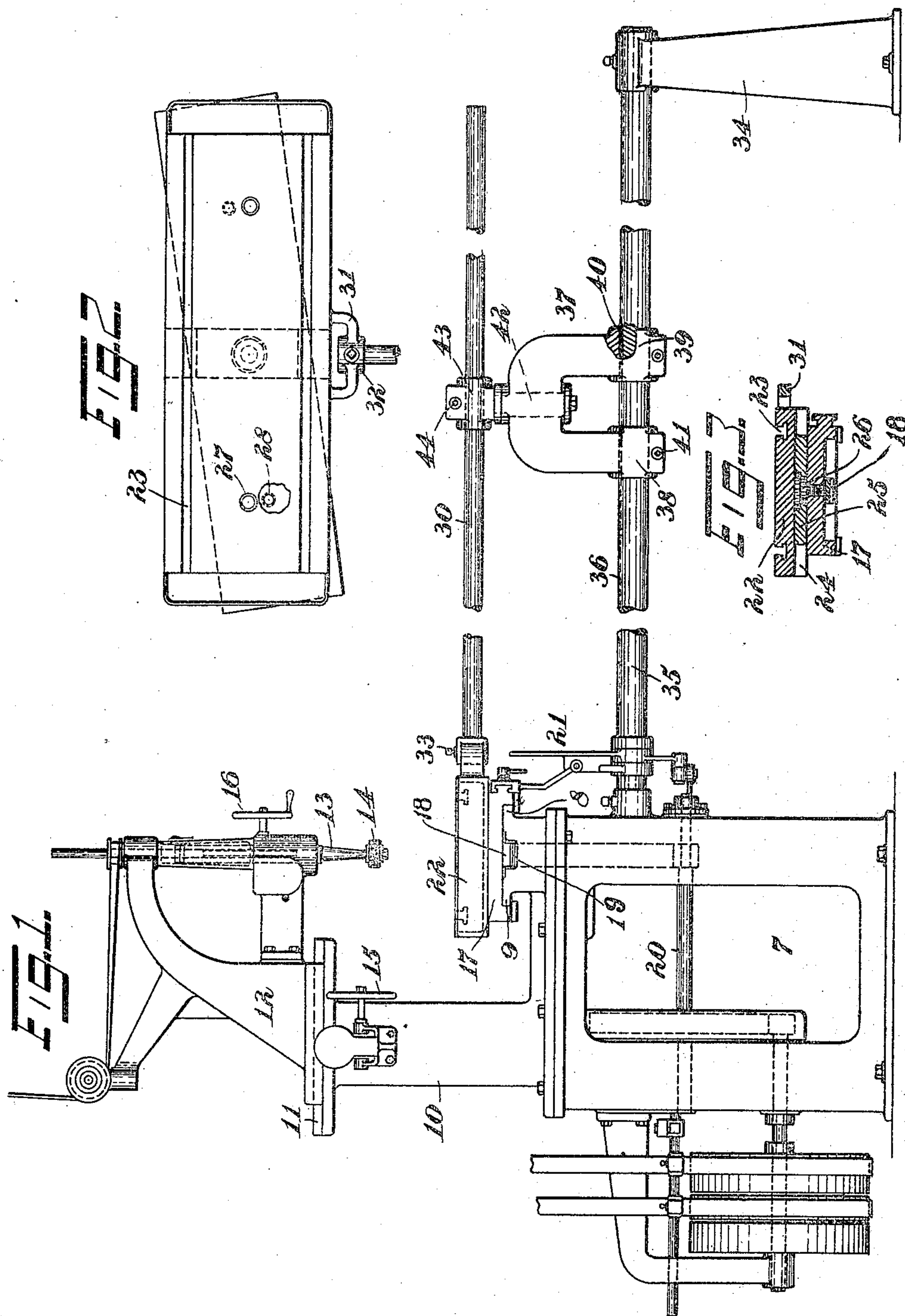


A. O. VAN DERVORT.  
RADIUS GRINDER.  
APPLICATION FILED SEPT. 14, 1909.

944,300.

Patented Dec. 28, 1909.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

ADRIAN O. VAN DERVORT, OF TROY, NEW YORK.

RADIUS-GRINDER.

944,300.

Specification of Letters Patent. Patented Dec. 28, 1909.

Application filed September 14, 1909. Serial No. 517,553.

*To all whom it may concern:*

Be it known that I, ADRIAN O. VAN DERVORT, a citizen of the United States, residing in Troy, in the county of Rensselaer and State of New York, have invented certain new and useful Improvements in Radius-Grinders, of which the following is a specification.

This invention relates to and has for its object to provide an improved radius grinder, and one which is particularly adapted for use in grinding links and link blocks for use upon locomotives.

The mechanism embodying this invention is capable not only of grinding curved surfaces to any desired radius but is also capable of grinding flat surfaces or rectangular surfaces as well.

The invention embodies several details of construction which contribute to the efficiency of the device and these will be described fully in their proper places.

In the drawings accompanying and forming a part of this specification Figure 1 is a side elevation of a practicable embodiment of a form of my improved grinder. Fig. 2 is a top view illustrating the work table and the driving table or slide with a broken away portion of the radius bar. Fig. 3 is a cross section of the work table slide and the driving slide together with the pivotal connection between these slides.

The various parts of the mechanism are mounted upon a frame designated in a general way by 7, which frame will be of such form and dimensions as will be desired for the particular work which it is to perform. In the present instance it is shown as having a standard or upstanding portion 8 provided with longitudinal ways 9. It is also provided with a higher upstanding portion 10 which is provided with ways 11 and disposed transversely to the ways 9 and upon which ways 11 is mounted a spindle carrying head 12, there being mounted in such head a spindle 13, which in the present illustration carries a grinding wheel 14. A hand wheel 15 and connected mechanism will be provided for traversing the head 12 upon the ways 11 and a hand wheel 16 and connected mechanism will be provided for shifting the spindle 13 in an axial direction.

An under table or driving slide 17 is mounted upon the ways 9 and is provided upon its lower portion with a longitudinally disposed rack 18 which is engaged by a gear

wheel 19 driven from the shaft 20 which will effect the longitudinal reciprocation or traverse of the driving slide 17, there being provided some suitable form of shifting mechanism, designated in a general way by 21 for controlling the belt shifter; but this forms no part of the present improvement, but is only illustrated to show a form of controlling mechanism and further details will not be gone into. For the same reasons the details of the grinding head are also treated briefly.

The top of the driving slide or table 17 is substantially flat and will preferably be located in a horizontal plane. Mounted upon the driving slide 17 is the work table slide 22 which is provided with longitudinal slots 23 for receiving T-bolts for securing the work in position. The lower face of the work table slide is substantially flat and rests upon the upper face of the slide 17. A connection is provided between the driving slide 17 and the work table slide 22 which will permit an angular movement of these slides one relative to the other, but will cause them to reciprocate longitudinally together, and which connection will permit lateral movement one relative to the other. And in the present construction one of these slides is provided with a transverse guideway and the other with a pivot seated in such guideway. The slide 22 is shown provided midway between its ends with a transverse groove, the walls 24 of which are in engagement with the side faces of a block 25, which block is pivotally carried by the driving slide 17, there being provided a pivot screw 26 which passes through such block and screws into the driving slide 17. When it is not desired to grind upon a radius but it is desired to grind straight or flat faces the slides 22 and 17 will be secured together by means of bolts passing through the holes 27 and 28 in such slides, and the radius bar disconnected.

An adjustable center for the work table slide 22 will be provided and which radius center will be securely and accurately held in position during the grinding operation. A radius bar 30 is fast with the slide 22 and projects transversely thereof. In the present construction a bracket 31 supports a socket member 32 in such a position upon the work table slide 22 that when the radius bar 30 is seated in such socket member 32 and held in position, as by means of the set



screw 33, its general direction will coincide with that of the guideway in such slide 22. The frame and a supporting member 34 rigidly carry a guide-rail 35 below the radius bar 30 and in a direction transverse to the ways 9, and consequently transverse to the direction of traverse of the driving slide 17. The guide-rail 35 is shown provided with a keyway 36. A radius center support 37 is mounted upon the guide-rail 35 and is provided with a pair of widely spaced apart clamps 38—39, which clamps have keys 40 seated in the keyways 36, and clamping bolts 41 securely bind the clamps upon the guide-rail 35. The clamps 38—39 are widely spaced apart so as to distribute the strain which they will receive over a larger portion of the guide-rail 35 and also to enable the parts to resist such movement as tend to lengthen or shorten the radius of the radius bar. The pivot or center for the radius bar is provided with a form of pintle 42 which is seated in a bearing in the center support 37 and is provided with a clamp member 43 which is longitudinally adjustable on the radius bar 30 and will be fastened in its position of adjustment thereon by means of the clamp bolt 44.

The work will be clamped upon the work table slide 22, and if it is desired to grind curved surfaces the radius center will be adjusted to the proper position, after which the grinding will proceed. All sides of the work may be ground in respect of this one center and the grinding spindle may be caused to approach the work from either side of the longitudinal line of the ways 17 so that both sides of a link may be ground with one clamping of the work to the work table, and in addition to grinding both sides of the work with the proper radial faces any portions of the work requiring straight faces ground thereon may receive treatment by removing radius bar 30 and clamping the slides 22 and 17 together, without having to remove the work from the work table.

In the present machine it will be seen that certain portions of the shifting mechanism are mounted upon the guide-rail 35. By this means a strong and substantial support is afforded for these parts and the amount of machine parts is materially reduced.

Having described my invention I claim:

1. The combination with a driving slide and means for effecting a longitudinal traverse thereof, of a work-table slide mounted thereon, the work-table slide being provided with a guideway disposed transversely of the direction of traverse of the driving slide, a block pivotally carried by said driving slide and seated in said guideway, a radius bar rigid with the work-table slide, and a center pivot for the radius bar adjustable toward and from the driving slide.

2. The combination with a driving slide

and means for effecting a longitudinal traverse thereof, of a work-table slide being provided with a guideway disposed transversely of the direction of traverse of the slide rest, a block pivotally carried by said driving slide and seated in said guideway, a radius bar rigid with the work table slide, a guide rail disposed transversely of the direction of traverse of the driving slide, a center support mounted on the rail, a clamp for holding the support in its position of adjustment on the rail, a pivot for the radius bar carried by the support, and a clamp for holding the pivot in its position of adjustment on the radius bar.

3. The combination with a machine frame provided with horizontally disposed ways, of a driving slide mounted on said ways and means for reciprocating the slide on the ways, a work table slide mounted on the driving slide, one of said slides being provided with a transverse groove and the other being provided with a projecting member seated in such groove, a radius bar projecting transversely from the work table slide, and a pivot for the radius bar.

4. The combination with a machine frame provided with horizontally disposed ways, of a driving slide mounted on said ways and means for reciprocating the slide on the ways, a work table slide mounted on the driving slide, one of said slides being provided with a transverse groove and the other being provided with a projecting member seated in such groove, a radius bar projecting transversely from the work table slide, a clamp mounted on the radius bar and a pintle carried by such clamp, a guide bar carried by the frame below the radius bar and projecting transversely to the ways and being provided longitudinally with a keyway, a support having a bearing for the pintle and provided with clamps mounted on the guide bar, and a key seated in the said key-way.

5. The combination with a machine frame provided with horizontally disposed ways, of a driving slide mounted on said ways and means for reciprocating the slide on the ways, a work table slide mounted on the driving slide, one of said slides being provided with a transverse groove and the other being provided with a projecting member seated in such groove, a radius bar projecting transversely from the work table slide, and a pintle mounted on the radius bar for longitudinal adjustment thereon, a guide bar carried by the frame below the radius bar and projecting transversely to the ways, and a center support having a bearing for the pintle and provided with a pair of widely spaced apart clamps mounted on the guide bar.

6. The combination with a machine frame provided with horizontally disposed ways,



of a driving slide mounted on said ways and means for reciprocating the slide on the ways, a work table slide mounted on the driving slide, one of said slides being provided with a transverse groove and the other being provided with a projecting member seated in such groove, means for rigidly securing said slides together, a radius bar, a socket and clamp carried by the work table slide for supporting the radius bar transversely thereof, a clamp mounted on the radius bar and a pintle carried by such clamp, a guide bar carried by the frame below the radius bar and projecting transversely to the ways, and a support having a bearing for the pintle and provided with clamps mounted on the guide bar.

7. The combination with a machine frame

provided with ways, of driving slide mounted on such ways and means for effecting a longitudinal traverse of such slide, a worktable slide, one of said slides being provided with a transverse guideway, a pivot member carried by the other slide and seated in such guideway, a radius bar rigid with the work table slide, a pivot mounted on the radius bar for longitudinal adjustment thereon, an adjustable support for the said radius bar pivot, a grinder spindle and means for feeding the spindle toward and from either side of said ways.

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