April 25, 1933. H. LINDNER 1,905,390

DEVICE FOR SHAPING AND TRUING GRINDING ROLLS

Original Filed April 30, 1930

Fig. 1.

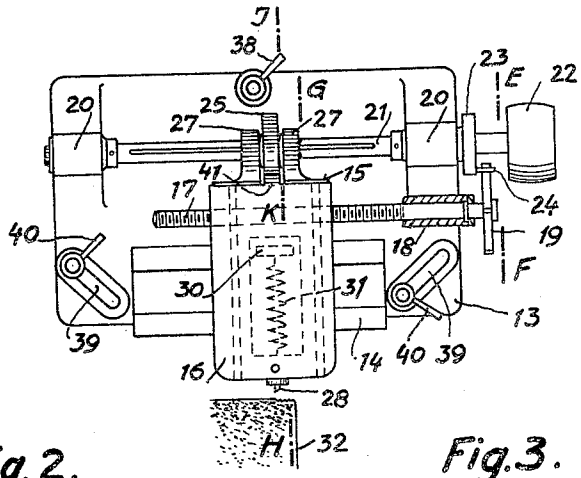


Fig. 2.

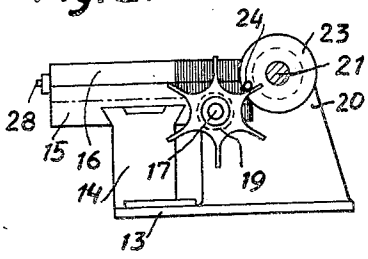


Fig. 3.

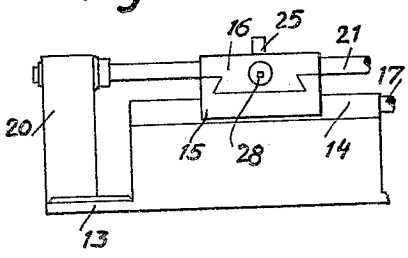


Fig. 4.

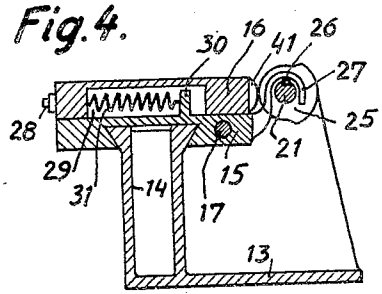
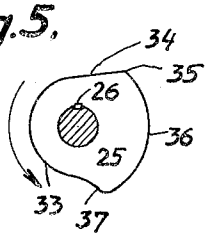


Fig. 5.



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UNITED STATES PATENT OFFICE

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DEVICE FOR SHAPING AND TRUING GRINDING ROLLS

Original application filed April 30, 1930, Serial No. 448,658, and in Germany October 17, 1927. Divided and this application filed June 1, 1932. Serial No. 614,777.

This invention relates to a truing tool for use in truing the ribs of such a grinding roller as is shown and described in my copending application for patent filed April 30, 1930 and bearing Serial Number 448,658, the present application being a division thereof.

One important object of the invention is to provide an improved general construction of truing tool for this purpose.

A second important object of the invention is to provide an improved truing tool especially designed to true sharply serrated grinding rolls.

With the above and other objects in view, the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawing and specifically claimed.

In the accompanying drawing, like characters of reference indicate like parts in the several views, and:—

Figure 1 is a top plan view of the improved roll truing device.

Figure 2 is a section on the line E—F of Figure 1.

Figure 3 is a front elevation of the left hand portion of Figure 1.

Figure 4 is a section on the line G—H of Figure 1 and

Figure 5 is an enlarged detail section on the line J—K of Figure 1.

In the present embodiment of the invention, a frame 13 adapted to be mounted on a suitable base is provided with a dove-tail guide 14 whereon a saddle piece 15 is arranged to slide. The saddle piece forms a guide for a tool or cutter holder 16 which moves in a direction at right angles to the saddle piece. The latter is controlled by a screw spindle 17 which is held in a bearing bracket 18 on the frame 13 and is fitted at one end with a star wheel 19. A driving shaft 21 arranged parallel to the screw spindle is mounted in bearing brackets 20 and fitted with a pulley wheel 22 through the medium of which it receives continuous motion. A disc 23 mounted on the driving shaft carries a tappet 24 which cooperates with the star wheel 19 for imparting intermittent rotation to the screw spindle. Slidably feathered on the shaft 21 is a cam 25 against which the holder 16 bears under the influence of a tension spring 31, the latter being accommodated in a recess 29 in the holder and attached at one end to a lug 30 which rises from the saddle piece 15 and at its other end to the holder 16. A pair of hooked arms 27 on the saddle piece embraces the shaft 21, one at each side of the cam 25 and causes the latter to follow the movements of the tool holder. A shaping and truing tool in the form of a diamond 28 is secured to the front end of the tool holder.

The cam 25 may be shaped so as to effect a slow return movement of the tool holder, and the lateral feeding of the blank may be carried out during such return movement for forming the sloping backs of the ribs. In this case a pointed diamond without any definite shape may be used for forming the ribs.

Figure 1 shows a roller blank 32 arranged in position to be shaped by means of the tool 28, the blank being supported and rotated by suitable means (not shown). In the arrangement shown, about one-half of the cam 25 is cylindrical and allows the spring 31 to maintain the shaping tool out of contact with the roller 32 while the tool holder and the tool are shifted by means of the tappet 24 and the star wheel 19 through the space of one rib. After the shifting of the tool holder a rising cam face 34 causes the tool to be substantially thrust forward into contact with the roller, whereupon a cam face 35 gradually advances the tool until a groove of the required depth is formed. From 36 the cam face is again substantially cylindrical and maintains the tool in the groove until a de-

scending face 37 causes it to be suddenly retracted from the roller so as to allow a fresh lateral advance of the tool holder. Subsequent truing of the grinding roller is effected in the same manner.

The frame 13 may be secured to the supporting base by means of clamp screws, and may be adapted to be adjusted about one of the screws 38, the remaining screws 40 being passed through elongated slots 39 which will allow the adjustment. By this arrangement the device can be set for shaping and truing conical as well as cylindrical grinding rollers.

I claim:

1. A device for shaping and truing grinding rolls comprising a frame, a saddle mounted on the frame to move transversely thereof, a tool holder mounted on the saddle to move longitudinally of the frame, a drive shaft extending transversely of the frame and provided with driving means, a cam mounted on the drive shaft and engaging the tool holder to move the same in one direction, a spring constantly holding the tool holder against the cam, and means to feed the saddle transversely of the frame.

2. A device for shaping and truing grinding rolls comprising a frame, a saddle mounted on the frame to move transversely thereof, a tool holder mounted on the saddle to move longitudinally of the frame, a drive shaft extending transversely of the frame and provided with driving means, a cam mounted on the drive shaft and engaging the tool holder to move the same in one direction, a spring constantly holding the tool holder against the cam, means to feed the saddle transversely of the frame, and an operative connection between said shaft and means arranged to cause operation of the means once during each revolution of the shaft.

3. A device for shaping and truing grinding rolls comprising a frame, a saddle mounted on the frame to move transversely thereof, a tool holder mounted on the saddle to move longitudinally of the frame, a drive shaft extending transversely of the frame and provided with driving means, a cam mounted on the drive shaft and engaging the tool holder to move the same in one direction, a spring constantly holding the tool holder against the cam, means to feed the saddle transversely of the frame, spline means connecting the cam and shaft to permit movement of the cam along the shaft, and means carried by the saddle and engaging the cam to move the latter as the saddle moves.

4. A device for shaping and truing grinding rolls comprising a frame, a saddle mounted on the frame to move transversely thereof, a tool holder mounted on the saddle to move longitudinally of the frame, a drive shaft extending transversely of the frame and provided with driving means, a cam mounted on the drive shaft and engaging the tool holder to move the same in one direction, a spring constantly holding the tool holder against the cam, means to feed the saddle transversely of the frame, an operative connection between said shaft and means arranged to cause operation of the means once during each revolution of the shaft, spline means connecting the cam and shaft to permit movement of the cam along the shaft, and means carried by the saddle and engaging the cam to move the latter as the saddle moves.

5. A device for shaping and truing grinding rolls comprising a frame, a saddle mounted on the frame to move transversely thereof, a tool holder mounted on the saddle to move longitudinally of the frame, a drive shaft extending transversely of the frame and provided with driving means, a cam mounted on the drive shaft and engaging the tool holder to move the same in one direction, a spring constantly holding the tool holder against the cam, a feed screw having screw engagement with the saddle, a bracket on the frame supporting the screw for rotative movement and cooperating with the screw to prevent longitudinal movement thereof, and means to actuate the screw as the shaft revolves.

6. A device for shaping and truing grinding rolls comprising a frame, a saddle mounted on the frame to move transversely thereof, a tool holder mounted on the saddle to move longitudinally of the frame, a drive shaft extending transversely of the frame and provided with driving means, a cam mounted on the drive shaft and engaging the tool holder to move the same in one direction, a spring constantly holding the tool holder against the cam, a feed screw having screw engagement with the saddle, a bracket on the frame supporting the screw for rotative movement and cooperating with the screw to prevent longitudinal movement thereof, a disk fixed on the shaft, a star wheel fixed on the screw, and a tappet projecting from the disk and engaging the arms of the star wheel in succession as the shaft revolves.

7. A device for shaping and truing grinding rolls comprising a frame, a saddle mounted on the frame to move transversely thereof, a tool holder mounted on the saddle to move longitudinally of the frame, a drive shaft extending transversely of the frame and provided with driving means, a cam mounted on the drive shaft and engaging the tool holder to move the same in one direction, a spring constantly holding the tool holder against the cam, a feed screw having screw engagement with the saddle, a bracket on the frame supporting the screw for rotative movement and cooperating with the screw to prevent longitudinal movement thereof, means to actuate the screw as the shaft revolves, spline means connecting the cam and shaft to permit movement of the cam along

the shaft, and means carried by the saddle and engaging the cam to move the latter as the saddle moves.

8. A device for shaping and truing grinding rolls comprising a frame, a saddle mounted on the frame to move transversely thereof, a tool holder mounted on the saddle to move longitudinally of the frame, a drive shaft extending transversely of the frame and provided with driving means, a cam mounted on the drive shaft and engaging the tool holder to move the same in one direction, a spring constantly holding the tool holder against the cam, a feed screw having screw engagement with the saddle, a bracket on the frame supporting the screw for rotative movement and cooperating with the screw to prevent longitudinal movement thereof, a disk fixed on the shaft, a star wheel fixed on the screw, a tappet projecting from the disk and engaging the arms of the star wheel in succession as the shaft revolves, spline means connecting the cam and shaft to permit movement of the cam along the shaft, and means carried by the saddle and engaging the cam to move the latter as the saddle moves.

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