Mar. 3, 1925. 1,528,672

A. LEIPERT

PRESSURE ROLLER SMOOTHING APPARATUS FOR CIRCULAR OBJECTS, PARTICULARLY AXLE JOURNALS

Filed Dec. 20, 1921 2 Sheets-Sheet 1

Fig. 1.

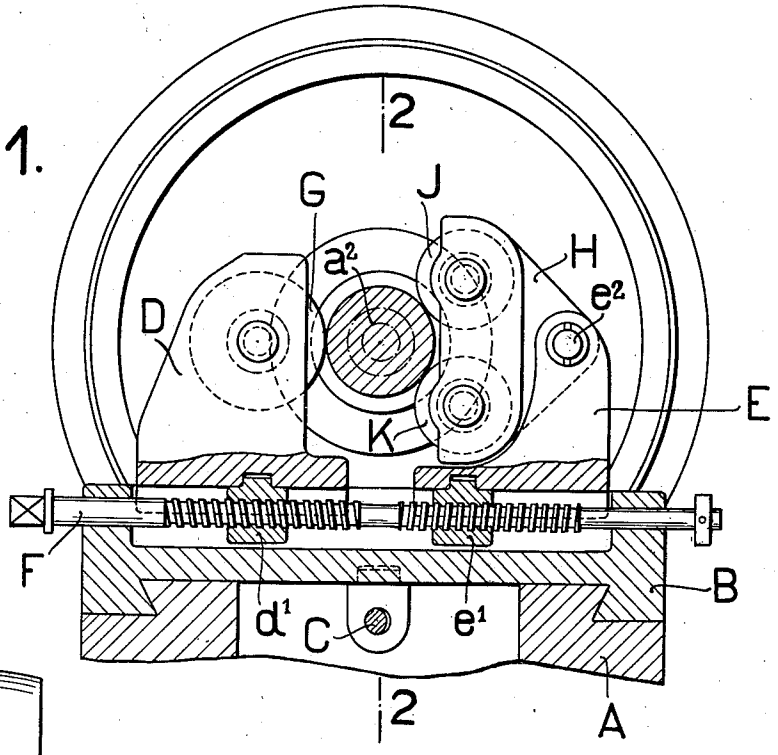
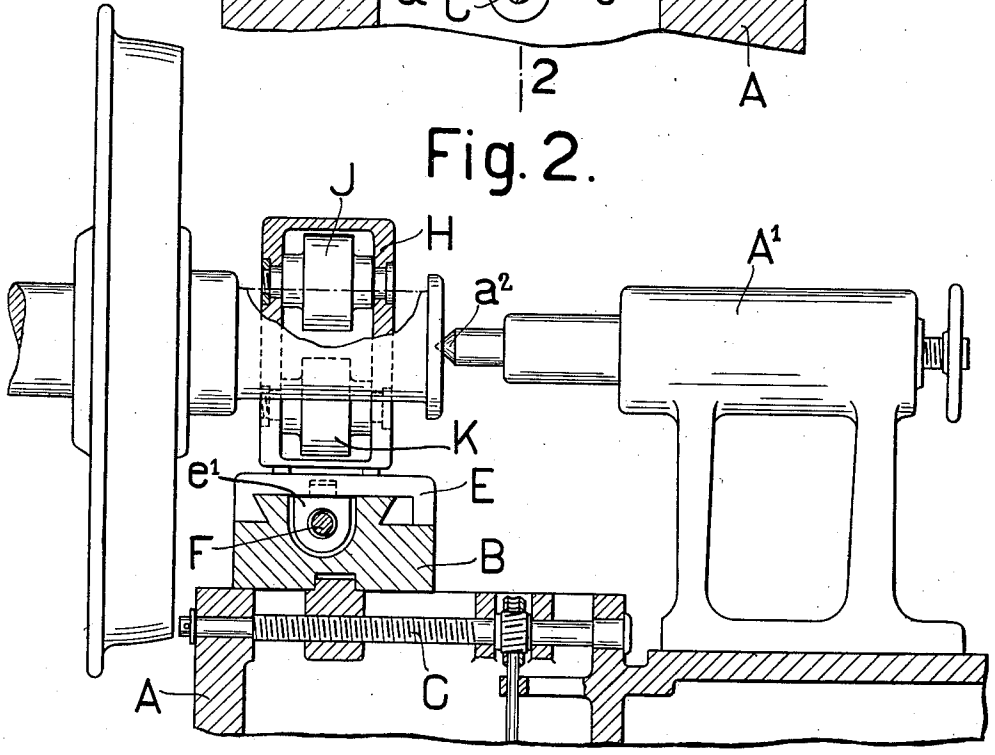


Fig. 2.



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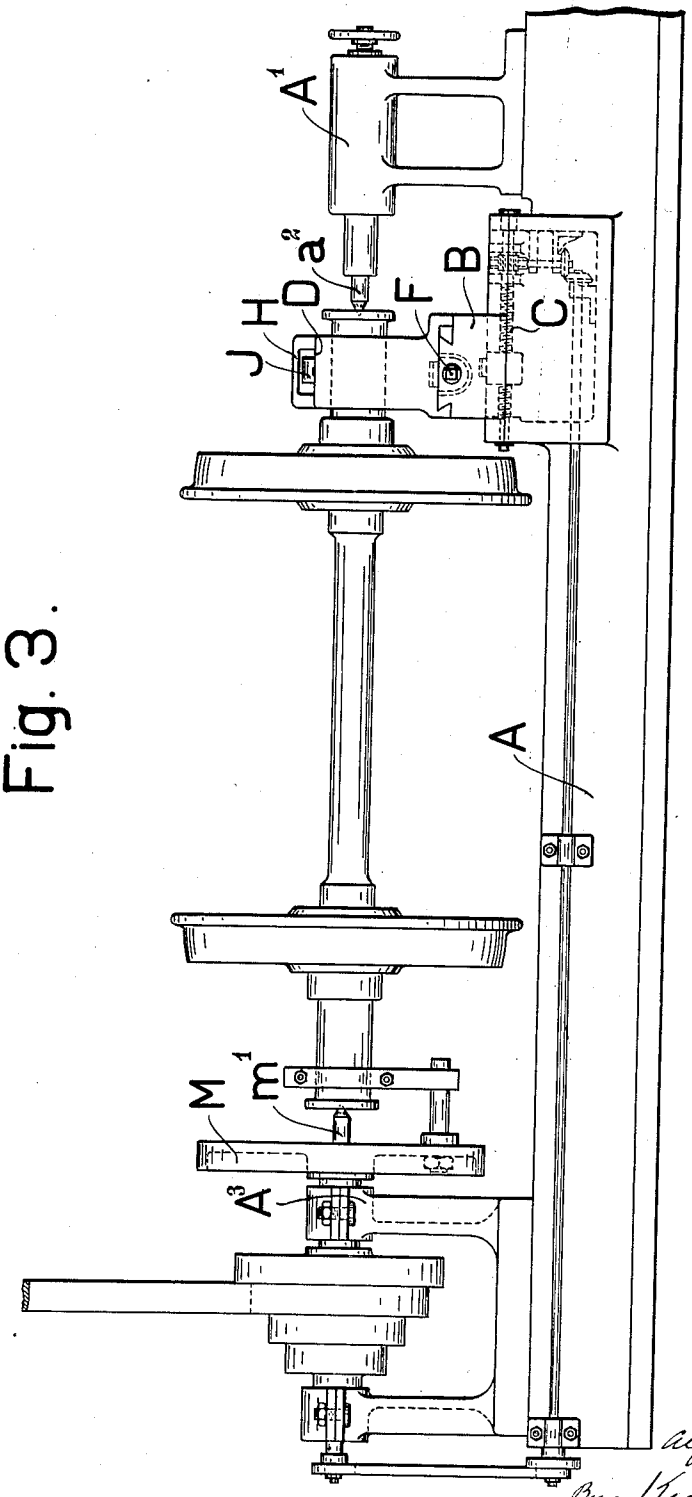
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Fig. 3.



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UNITED STATES PATENT OFFICE.

ALFRED LEIPERT, OF ESSEN, GERMANY, ASSIGNOR TO FRIED. KRUPP AKTIENGESELLSCHAFT, OF ESSEN-ON-THE-RUHR, GERMANY.

PRESSURE-ROLLER SMOOTHING APPARATUS FOR CIRCULAR OBJECTS, PARTICULARLY AXLE JOURNALS.

Application filed December 20, 1921. Serial No. 523,716.

To all whom it may concern:

Be it known that I, ALFRED LEIPERT, residing at Essen, Germany, a citizen of the German Republic, have invented a certain new and useful Improvement in Pressure-Roller Smoothing Apparatus for Circular Objects, Particularly Axle Journals, of which the following is a specification.

The present invention relates to pressure roller smoothing apparatus for circular objects mounted to rotate on centers in the frame of the apparatus, particularly axle-journals, and the object of the invention is to afford as perfect a relief as possible to the centers from the pressure of the pressure rollers which are likewise mounted on the frame of the apparatus.

The invention will be described with reference to an embodiment of the subject-matter of the invention, intended for smoothing the axle-journals of a set of railway wheels, shown by way of example in the accompanying drawing in which—

Figure 1 is an end view, partially in section, of the smoothing apparatus.

Figure 2 is a section on the line 2—2 of Figure 1 looking from the left and

Figure 3 is a general side view of the smoothing apparatus viewed from the same side as in Figure 2.

On the frame A of the smoothing apparatus which is fitted after the manner of a lathe with a fixed headstock A^3 carrying a coupling disc M provided with a center m^1 and a movable headstock A^1 carrying a center a^2 is mounted a travelling slide B which can be moved longitudinally of the apparatus by means of a spindle C. On the slide B are mounted two supporting members D and E which can be moved towards opposite sides at right angles to the direction of movement of the slide B. The supporting members D and E are moved longitudinally by a screw spindle F which is provided with a right- and left-handed screw-thread and is adapted to rotate in the slide B, and to freely move in its longitudinal direction within definite limits. The said screw-threaded spindle F engages two guide nuts d^1 and e^1, which are fixed to the supporting members. In one of the two supporting members, D, is mounted a pressure roller G, the axis of rotation of which is parallel with the direction of the longitudinal movement of the slide B and is positioned at the same height as the centers a^2 and m^1 of the smoothing apparatus on which the circular objects to be smoothed are mounted to rotate. The other supporting member E is rotatably mounted by means of a pin e^2, the axis of which is likewise at the same height as the centers a^2 and m^1, and is parallel with the direction of longitudinal movement of the slide B, a holder H carrying two other pressure rollers J and K, the axes of which are parallel with the axis of rotation of the roller G.

The set of wheels, the axle-journals of which are to be smoothed, is chucked, as shown in Figures 2 and 3, between the centers a^2 and m^1 of the apparatus and caused to rotate by the coupling disc M mounted on the fixed headstock A^3. After the pressure rollers G, J and K mounted on the supporting members D and E, have been pressed by means of the screw spindle F against the surface of one of the axle-journals which are to be smoothed, the pressure rollers are set in rotation by the rotating axle-journal and also moved along the surface of the axle-journal to be smoothed by the slide B which is simultaneously moved longitudinally of the axle-journal by means of the spindle C.

The above described apparatus possesses firstly the advantage that not only the desired smoothing action can be secured on the cylindrical peripheral surface of the axle-journal but also without difficulty in the angles limiting said surface. Furthermore, owing to the rollers J and K being mounted in the holder H, and the screw spindle F being freely movable in its bearings in longitudinal direction, the additional advantage is afforded that it can be reckoned on with certainty that all the three rollers (G, J and K) are always simultaneously in contact with the axle-journal. This is also the case in particular when, for example, owing to wear of the guide for the slide a difference in the respective levels of the rollers and the centers takes place, or when for example, owing to the pull of the belt, or from any other cause, the axis of rotation of the work is shifted laterally out of its central position. The simultaneous contact of the pressure rollers causes any one-sided pressure on the axle-journal

to be avoided and consequently ensures the centers being as completely as possible relieved of strain.

Claims:

1. A pressure roller smoothing apparatus comprising a frame, means mounted on said frame for axially centering a rotating circular body, three pressure rollers, means for independently supporting one of said rollers in contact with the lateral surface of said body, a connecting bearing member for the other two rollers, means for pivotally supporting said bearing member substantially opposite said first named roller, whereby its two rollers are in contact with said body and means for adjusting said supporting means transversely to the axis of rotation of said body.

2. A pressure roller smoothing apparatus comprising a frame, means mounted on said frame for axially centering a rotating circular body, three pressure rollers, means for independently supporting one of said rollers in contact with the lateral surface of said body, a connecting bearing member for the other two rollers, means for pivotally supporting said bearing member substantially opposite said first named roller, whereby its two rollers are in contact with said body, a screw spindle having two screw threaded portions of opposite pitch bearing means for rotatably supporting said spindle, said spindle being longitudinally movable in said bearing means, each of said roller supporting means being under the control of one of the screw portions of said spindle whereby they are adjustable transversely to the axis of rotation of said body.

3. A pressure roller smoothing apparatus comprising a frame, means mounted on said frame for axially centering a rotating cylindrical body, three pressure rollers, the axes of said rollers being normally positioned as the vertices of an isosceles triangle whose altitude intersects the axis of said body and is at right angles thereto, a connecting bearing member for the two rollers whose axes are positioned at the base vertices of the triangle, means for pivotally supporting said bearing member at a point midway between its two rollers, means for supporting the other roller, and means for adjusting said supporting means transversely to the axis of rotation of said body.

4. A pressure roller smoothing apparatus comprising a frame, means mounted on said frame for axially centering a rotating cylindrical body, three pressure rollers, the axes of said rollers being normally positioned as the vertices of an isosceles triangle whose altitude intersects the axis of said body and is at right angles thereto, a connecting bearing member for the two rollers whose axes are positioned as the base vertices of the triangle, means for pivotally supporting said bearing member at a point midway between its two rollers, means for supporting the other roller, a screw spindle having two screw threaded portions of opposite pitch, bearing means for rotataby supporting said spindle, said spindle being longitudinally movable in said bearing means, each of said roller supporting means being under the control of one of the screw portions of said spindle whereby they are adjustable transversely to the axis of rotation of said body.

The foregoing specification signed at Essen, Germany, this 19th day of November, 1921.

ALFRED LEIPERT.