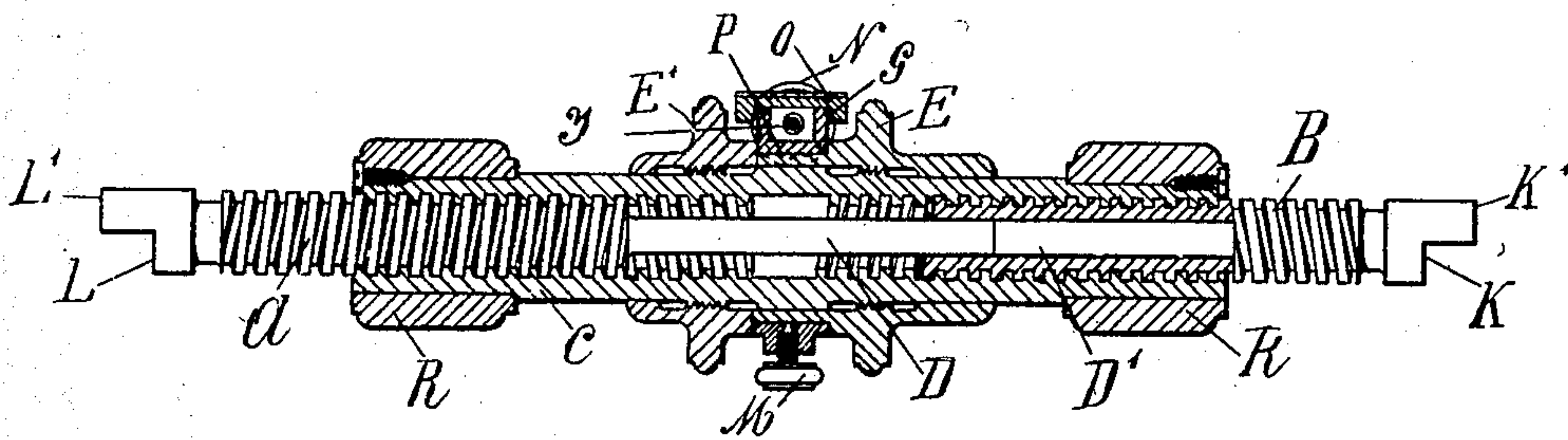


S. SANER.  
CENTERING TOOL.  
APPLICATION FILED JULY 10, 1908.

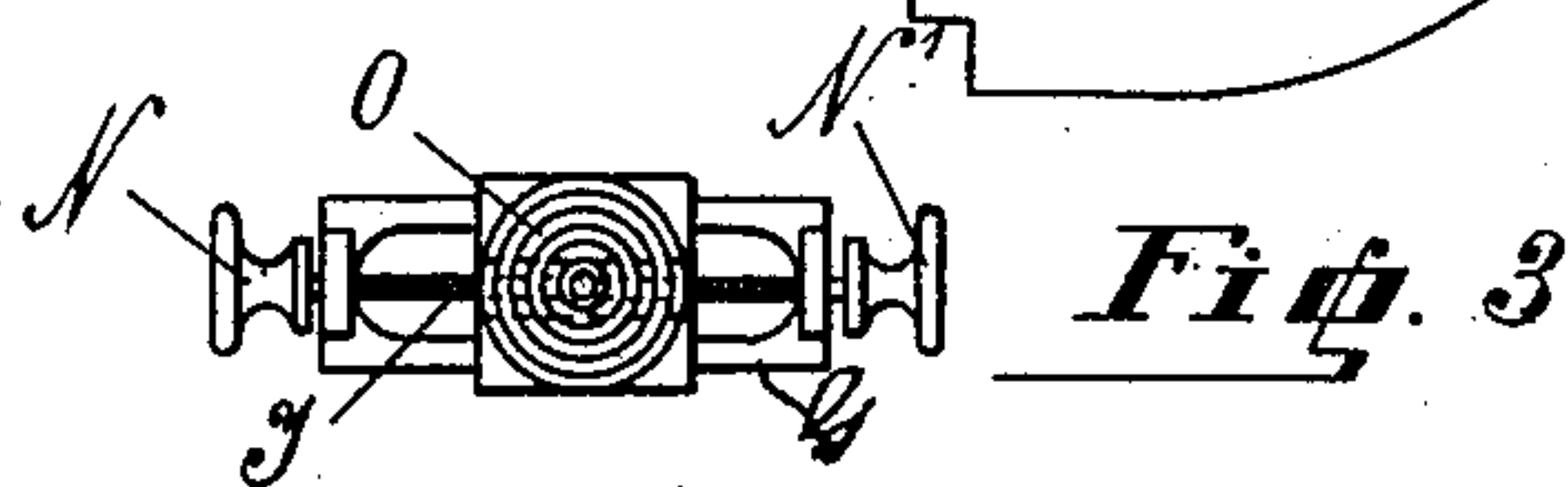
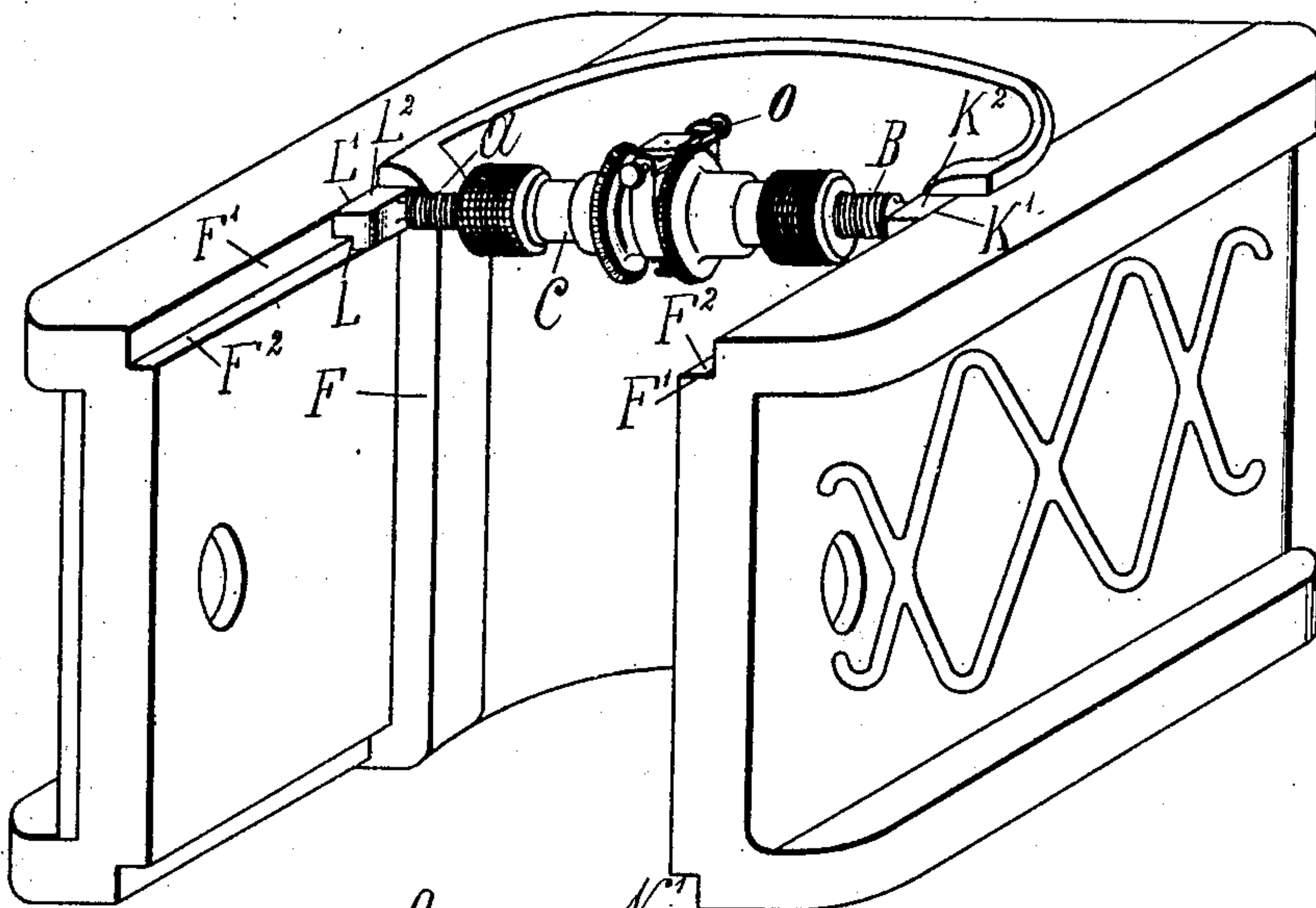
918,378.

Patented Apr. 13, 1909

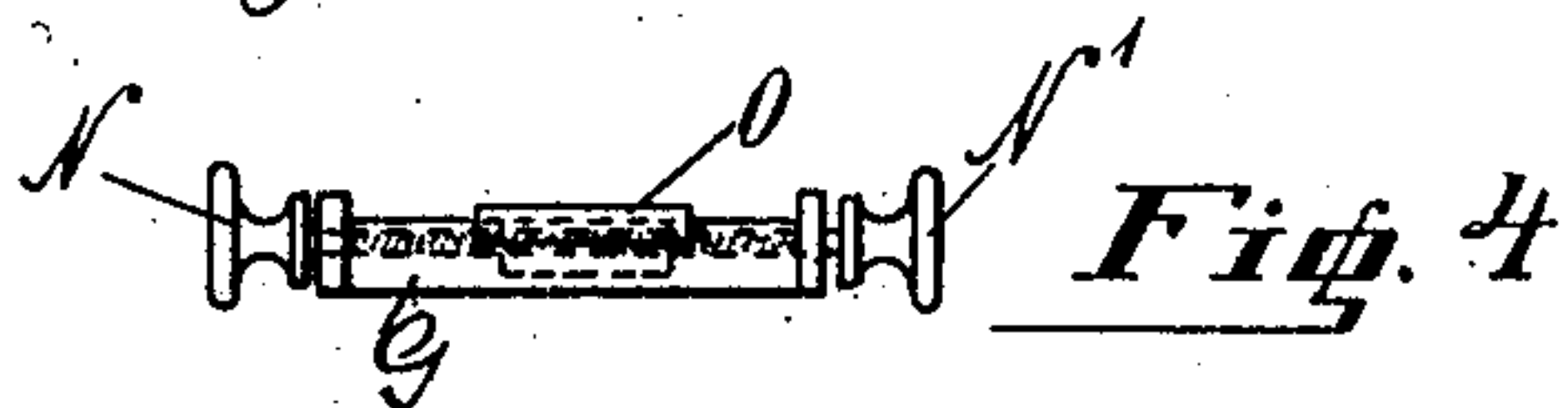
*Fig. 1*



*Fig. 2*



*Fig. 3*



*Fig. 4*

Witnesses:

Carl Tunes.

Jak. Thaber.

Inventor:

Stephen Saner



# UNITED STATES PATENT OFFICE.

STEFAN SANER, OF BELLINZONA, SWITZERLAND.

## CENTERING-TOOL.

No. 918,378.

Specification of Letters Patent.

Patented April 13, 1909.

Application filed July 10, 1906. Serial No. 325,556.

*To all whom it may concern:*

Be it known that I, STEFAN SANER, draftsman, a subject of the Republic of Switzerland, and resident of Bellinzona, Switzerland, have invented new and useful Improvements in Centering-Tools, of which the following is a specification.

The object of the present invention is a device by means of which the centers of axle bearings of locomotive engine axle boxes can be found.

A constructional form of this invention is shown in the annexed drawing.

Figure 1 is a longitudinal section. Fig. 2 shows the device in use. Figs. 3 and 4 are a plan and a side view of the slider and its support.

A is a screw spindle with a left hand thread having an extension in the form of a jaw with surfaces L, L<sup>1</sup> and L<sup>2</sup>, at one end, and at the other end an extension D of square section.

B is a screw spindle with a right hand thread having the same pitch as the thread of the screw spindle A, the said screw spindle B has similarly an extension in the form of a jaw with the surfaces K, K<sup>1</sup>, K<sup>2</sup>, and has a square hole D<sup>1</sup> running through its length, into which fits the extension D of the spindle A. Both spindles are screwed in a sleeve C, which has left and right hand threads corresponding to the threads of the spindles.

A box E is fitted on the sleeve C which is movably guided on the said sleeve C by means of a screw thread. Another box E<sup>1</sup> is also guided on the sleeve C in the same manner as the box E. On the cylindrical part P of the box E is a support G which is held from moving by means of a set screw M on which said support G is a scale (not shown in drawing). The support G is of such a shape as to form guides for the slider O; in which guides the slider O may be moved by means of a screw Y. On the slider O are described a number of circles, the center thereof being marked on the slider. The support G is seated between the two parts E and E<sup>1</sup> in such a manner that it may even be moved when the box E<sup>1</sup> is tightly clamped. This is possible owing to the fact that the part of the box E on which the support G is seated is made a little wider than the width of the support, so that when the box E<sup>1</sup> is screwed up against the box E a clearance space is left between E<sup>1</sup> and G, so that the latter can be moved when the screw M is loosened.

At both ends of the sleeve C, are rough

handles R, which may be easily turned by hand. For the same reason the box E and the counter sleeve E<sup>1</sup> have rough edged collars.

The support G seated on the box E, with the slider O can be adjusted by moving the box E and fixed by the box E<sup>1</sup>, so that the center of the circles described on the slider is exactly in the center between the surfaces L, K, and L<sup>1</sup>, K<sup>1</sup>, which is the case when a mark on the sleeve C coincides with a similar mark on the box E. On the support G is a scale so that when adjusting the slider on zero thereof, the center of the circle to be described, lies in the plane of the two surfaces L<sup>2</sup>, K<sup>2</sup>, and the apparatus is in a plane perpendicular to the sides of the axle-box.

The apparatus is used in the following manner:—After the bush of an axle box has been cast, and the axle box has been inserted, it is necessary to describe a circle to indicate the part of the bush which is to be bored out. To ascertain the center of this circle, the apparatus is clamped between the two sides of the axle box as shown in Fig. 2, so that the end of the surfaces L<sup>2</sup>, and K<sup>2</sup> rest against the surfaces F of the bush. If it now be the case that the support G is parallel to the sides of the axle-box, the support is adjusted at zero, the mark in the sleeve C is opposite the mark on the box E and which is now generally the case, the surfaces F lie in the horizontal central plane of the bush, then the circle center of the support lies in the central axis of the bush so that the circle can now be described from this point.

By means of one apparatus, many axle bush can conveniently and in a short time be sketched out, which compared with the hitherto known method, in which a special piece of wood had to be prepared, saves time and material. The apparatus can also be used as controlling apparatus when boring out the bush.

It may now be assumed, that the axle bearings, *i. e.* of a locomotive have been bored out. Then the apparatus is clamped into every axle box, as above described when the slider is moved about in such a manner, that its center corresponds to the central axis of the accurate boring. If the bearing is accurately bored around the described circle, then it is not necessary to move the slider. All the axle boxes of the locomotive are then set in, and the distances of the various axle centers are verified by means of calibers,



when measurements are taken from one slider center to the other. If now in consequence of the inaccurate boring of a bush, the central distance does not correspond with that of the caliber, the difference can then be directly read from the slider. This difference shows how much one side of the axle box should be packed up or ground off so that there is the correct distance between the axle centers.

Having fully described my invention, what I claim, and desire to secure by Letters Patent is:

A centering tool, comprising in combination, a sleeve having at the two ends respectively a left hand and a right hand internal thread, a left hand screw spindle having an extension of square section and a jaw, said

spindle fitting in the left hand thread of said sleeve, a right hand screw spindle having a jaw and a square hole into which fits said square extension, said spindle fitting in the right hand thread of the said sleeve, a box and a nut screwed on said sleeve, a support journaled on the box, a slider sliding on said support, and a screw for adjusting the slider, substantially as described and shown and for the purpose set forth.

In testimony whereof I have hereunto set my hand, in the presence of two subscribing witnesses.

STEFAN SANER.

Witnesses:

A. LIEBERKNECHT,  
JOSEPH SIMON.